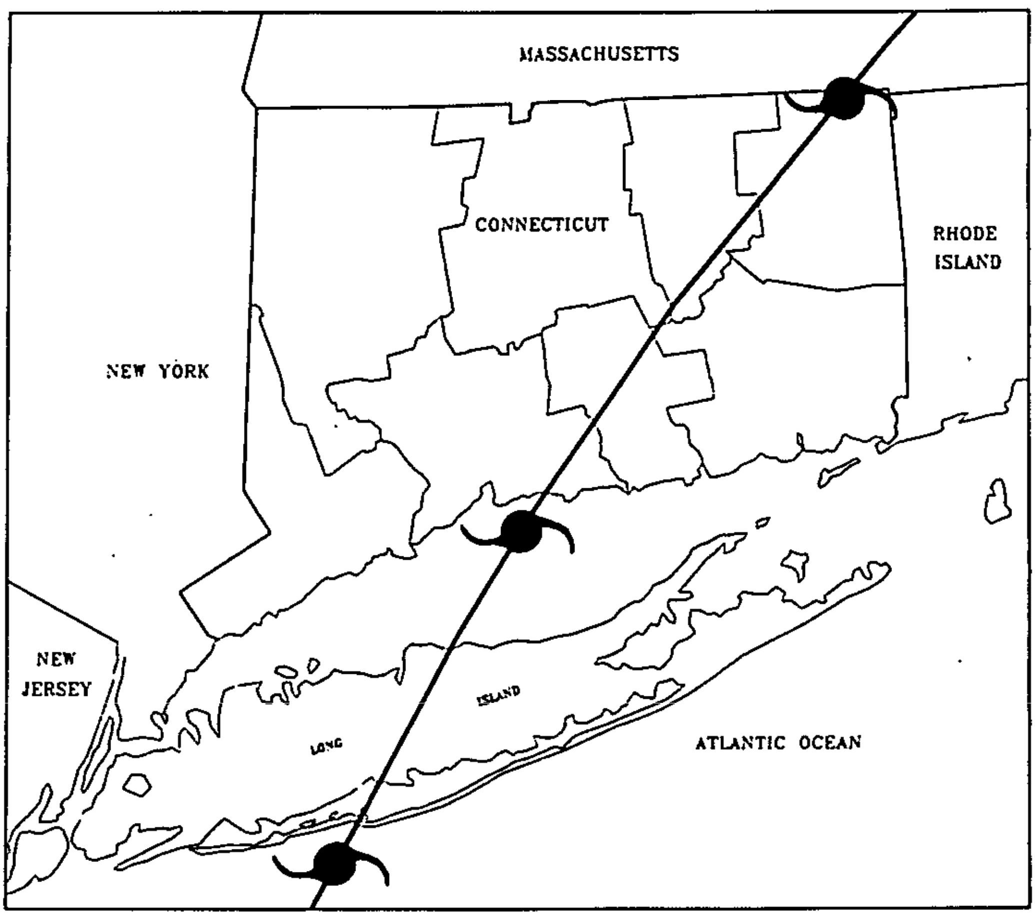
April 1994

Connecticut Hurricane Evacuation Study
Appendices A, B, and C



US Army Corps
of Engineers
New England Division

FEDERAL EMERGENCY
MANAGEMENT AGENCY

APPENDIX A

A Storm Surge Atlas for the Long Island Sound, New York Area

A STORM SURGE ATLAS FOR THE LONG ISLAND SOUND, NEW YORK AREA

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1. INTRODUCTION

Storm surge is the abnormal rise in water level caused by wind and pressure forces of a hurricane. Storm surge produces most of the flood damage and drownings associated with tropical storms that make landfall or that closely approach a coastline (Anthes, 1982).

A numerical storm surge model developed by Jelesnianski (1967, 1972), Jelesnianski and Taylor (1973) and Jelesnianski et al. (1984) has been applied to the Long Island Sound, NY region. The model, which calculates sea, lake and overland surges from hurricanes, and has the acronym "SLOSH," is a pairing of a model of a hurricane coupled to a model for storm surge. Crawford (1979) discussed some preliminary results using this model in the southeast Louisiana region.

The purpose of this atlas is to provide maps of SLOSH-modeled heights of storm surge and extent of flood inundation, for various combinations of hurricane strength, forward speed of storm and direction of storm motion. Strength is modeled by use of the central pressure and storm eye size using four of the five categories of storm intensity that Saffir and Simpson have categorized (Simpson and Riehl, 1981). Six storm-track headings were selected as being representative of storm behavior in this region on the basis of observations by forecasters at NOAA's National Hurricane Center.

The maps in this atlas summarize surge calculations made using the SLOSH model, when initialized with observed values (depths of water and heights of terrain and barriers) in the region centered on Long Island Sound, NY.

2. THE GRID FOR THE SLOSH MODEL OF THE LONG ISLAND SOUND AREA

Figure 1 illustrates the area covered by the grid for the Long Island Sound SLOSH model. The area covered by the grid is called a "basin"—the "Long Island Sound Basin." The grid is a telescoping polar coordinate system with 90 arc lengths ($1 \leq I \leq 90$) and 76 radials ($1 \leq J \leq 76$). Unlike a true polar coordinate grid, which would have radial increment (ΔR) that was invariant with radius, this grid uses a ΔR that increases with increasing distance from the grid's pole. The result is that in each grid of the mesh, the increment of arc length (ΔS) of the side of a grid "square" is approximately equal to the radial increment of the "square," or $\Delta S \cong \Delta R$.

The telescoping grid is a compromise between conflicting needs. What is desired is that a large geographical area, but with small, detailed topography be modeled. In a Cartesian coordinate system, this combination of big area, but spatially-small grid increment, requires that a computational mesh with many grid squares be used. A large mesh requires a computer with a large central processing unit (CPU) as well as more time to perform calculations in the more numerous grid squares. The telescoping grid, by comparison, permits a resolution of these conflicting needs: it has an acceptably small spatial resolution of 1 to 10 mi^2 per grid square over land, which is the area of greatest interest. Thus, topographic details, such as highway and railroad embankments, and dikes in harbors of cities are included in the model. However, the range increment contained in each grid square becomes progressively larger with increasing distance from the pole. As a result, a large geographic area is included in the model, so that the effects of the model's boundaries on the dynamics of the storm are diminished and the storm's physics are better emulated.

The grid is tangent to the earth at the basin center, Coney Island, New York at 40°36'13"N and 74°03'15"W. There, the grid increment is 0.675 statute mile. The pole (or origin) of the grid is located at 40°43'20"N and 74°20'30"W.

The telescoping grid has some disadvantages. Primarily, these stem from the distortion that occurs when the basin is remapped onto a display that has constant-sized increments in the vertical and horizontal, as happens when the basin is printed out by a conventional (computer) line printer. This distortion from remapping produces some difficulties in "reading" the results by the uninitiated. For example, neither latitude nor longitude lines remain uncurved and "parallels" become non-parallel. However, the projection is conformal. The projection scheme results in each grid square at I = 1, closest to the pole, representing an area of about 0.11 square mile. By contrast, at maximum distance from the pole, at I = 90, each grid square contains about 106.1 square miles. Thus, the distortions require that aids be provided to "read" and interpret the results.

3. SLOSH MODEL

A. Hurricane Model and Input

The hurricane model which drives the storm surge model was developed by Jelesnianski and Taylor (1973). It is a trajectory model of a stationary vortex and it balances the forces from pressure gradient, centrifugal, Coriolis and surface frictional effects. Adjustments are made to the computed vector wind to incorporate the hurricane's forward motion. The model's input includes the radius of maximum wind (RMW) and the difference (ΔP) in sea-level pressure between the ambient value and the minimum value in the storm's center. Directly measured wind vectors are not used. The model also requires input of the coordinates of the storm's center. Thus, input data include thirteen sets of latitude, longitude, ΔP and RMW, at six hour increments, beginning 48 hours before storm landfall and ending 24 hours after landfall. These 13 sets are then linearly interpolated into values/positions at hourly (or smaller) time increments. The model then generates the meteorological forces—surface stress and the gradient of atmospheric pressure-that drive the underlying ocean.

B. Storm Surge Model

Storm surge is the response by the ocean to meteorological forces. The model's governing equations are those given by Jelesnianski (1967), except now for the inclusion of the finite amplitude effect. Coefficients for surface drag, eddy viscosity and bottom slip are the same as those used in an earlier model (Jelesnianski, 1972). There is no calibration or tuning to force agreement between observed and computed surges; coefficients are fixed, and do not vary from one geographical region to another.

Special techniques are incorporated to model two-dimensional inland inundation, routing of surges inland when barriers are overtopped, the effect of trees, the movement of the surge up rivers, and flow through channels, cuts and over submerged sills. Besides surge, other processes affect water height (section 4B), but are not incorporated in the model.

Not surprisingly, the accuracy of modeled surge values increases as the accuracy of the input terrain and storm data improves.

4. OUTPUT AND INTERPRETATION OF THE MODEL RESULTS

A. Output from the SLOSH Model

The output for the Long Island Sound "SLOSH" model consists of maps of water heights. At each grid point, the water height is the maximum value that was computed at that point during the 72 (maximum) hours of model time. Thus, the map displays the highest water levels and does not display events at any particular instant in time. The analyzed envelopes of high water show shaded areas that represent dry land which has been inundated and contours of high water relative to mean sea level (MSL). Height of water above terrain was not calculated because terrain height varies within a grid square. For example, the altitude of a grid square may be assigned a value of 6-ft MSL, but this value represents an average of land heights that may include values ranging from 3 ft to 9 ft MSL. Thus, a surge value of 8 ft in this square, implying 2 ft average depth of water over the grid's terrain, would include some terrain without inundation and other parts with as much as 5 ft of overlying water. Therefore, the depth of surge flooding above terrain at a specific site in the grid square is deduced by subtracting the actual terrain height from the model-generated storm surge height in that square. Also supplied are printout lists of values of surge height, wind speed and wind direction for each of 120 sites. The values are ten-minute averages, every 30 minutes. These are useful for determining the time of onset of gale force winds and surge heights, for evacuation planning.

B. Interpretation of Results

Even if the model is supplied accurate data on storm positions, intensities and sizes, the computed surges may contain errors of +/- 20% of observed water levels. These primarily stem from:

1) Maps that are outdated: The maps which supplied heights of terrain and depths of water sometimes did not include changes, often man-made, that had been made to the heights and positions of barriers (e.g., highway and railway embankments) and depths and locations of channels. Inaccuracies of topography or bathymetry will contribute directly to errors in the modeling of all storm surges.
2) Anomalous water heights: Sea level can be at an altitude different from "mean sea level," days or even weeks before a storm is actually affecting a basin. The value of the actual, local sea level — the "local datums" for pre-storm anomaly in the Atlantic Ocean — must be supplied to the model, before calculations are initiated.

3) Local processes, such as waves, astronomical tides, rainfall and flooding from overflowing rivers: These processes are usually included in "observations" of storm surge height, but are not surge and are not calculated by the SLOSH model.

Factors such as the foregoing must be considered when comparisons are made between modeled and observed values of storm surge.

5. HURRICANE CLIMATOLOGY

A. Tracks

Between 1886 and 1986, 11 tropical cyclones of hurricane intensity passed within 100 statute miles of Coney Island, New York (Neumann et al., 1985), for an average of one hurricane within the 100-mile circle every 9.2 years.

Figures 2-4 show the tracks of these 11 storms with hurricane force winds. Figure 2 depicts the tracks for northwestbound and northbound storms, Figure 3 shows tracks for storms heading north-northeastward, and Figure 4 displays the tracks of storms heading northeastward.

The tracks represent "best estimates" and are based on a variety of data sources. Historically, storm strength, location and motion were only inferred, from analyses of wind, pressure and cloud observations made at ships and land stations being influenced by the storm. In 1943, aircraft reconnaissance of hurricanes began. Not until 1959 were there land-based weather radars, as now at Atlantic City, New York City and Chatham, Massachusetts which could be used to observe and record structure, development and motion of precipitation fields, and help infer center location and radius of maximum winds. The 1960's saw the advent of photography from weather satellites of tropical storms. Observations by aircraft, radar and satellite have shown that the tracks of centers of hurricanes contain wobbles, gyrations and cycloidal motions (Lawrence and Mayfield, 1977) and that there often are rapid developments in size and intensity of rain bands, contractions of eyewall diameters and formation of concentric ("double") eyewalls. Every one of these factors indicates asymmetries in the storm's dynamical structure; every one of these dynamical asymmetries affects the storm's surge. But these factors were not documented in the earlier storms and remain beyond the reach of present-day forecasting skill.

The tracks in Figures 2-4 are labeled at 6-hour intervals with month/day/hour (GMT).

B. Intensities

Hurricane intensity is usually defined by measurements at sea level of the maximum sustained wind speed and/or by minimum barometric pressure. Neither of these is easily obtained. Accurate estimates of these parameters at sea level were acquired only when a ship or land station was traversed by the storm's "eye." Minimum central pressure was gotten only when a barometer was in the precise path of the storm's center. Because the area covered by the strongest winds is much larger than that covered by the pressure minimum, strength of many older storms was deduced from measurements of wind speed. However, with the advent of aircraft reconnaissance, measurements made at flight level of meteorological parameters allow the calculation of barometric pressure at sea level. By comparison, winds at sea level are not so readily deduced from flight level data. For all the storm tracks in Figures 2-4, an estimate was made of the maximum wind speed at intervals of 6 hours. For some, only very indirect evidence exists of actual speeds. From the hourly values of the maximum wind speed inside the 100 mile circle, the largest value was selected. This maximum sustained wind speed for the hurricane is listed in Table 1 under the heading of "wind (in circle)." Storm heading and forward speed at hour of closest point of approach are listed in the last two columns.

The values listed in column 6 sometimes are poor estimates of the maximum wind speed; the following must be considered:

1) Actual wind speeds and directions exhibit gustiness.
2) The "average wind speed" has been calculated with a variety of time intervals over the years; thus, one can find historical wind records that have used time periods such as 1 hour, or 10 or 5 minutes or 1 minute as the "standard" period of measurement. Given the same record from a recording anemometer, the use of each of these measurement periods would likely yield a different average wind speed, with shorter periods probably giving higher average speeds.
3) The platforms for measuring maximum surface wind speed have changed over the years; data from ship and land stations now are supplemented by remotely-sensed data from aircraft, satellites and radar. However, the remote platforms, especially the last two, observe the motions of clouds or precipitation echoes, and these motions are not wind speed, nor are they at sea level.

Because of these limitations in determination of maximum wind speed, the SLOSH model uses storm-center sea-level pressure as a measure of storm intensity in modeling the Long Island Sound basin.

6. MAPS OF MAXIMUM ENVELOPE OF WATER ("MEOW") FROM SLOSH RUNS USING DATA FOR HYPOTHETICAL HURRICANES

A. Hypothetical Storm Tracks and Populations

The skill of the SLOSH model was evaluated by Jarvinen and Lawrence (1985), who compared modeled and observed surges at 523 sites during 10

Table 1. Hurricanes passing within 100 statute mile circle of Coney Island, New York (40.60°N, 74.05°W), during 1886-1986.

			>>>At Closest Point of Approach: (@CPA) <<<				
Index (1)	Date (@CPA) (2)	Storm Name (3)	Range/Bearing (miles/degrees) (to CPA) (4)	(5)	Wind (in circle) (mph) (6)	Storm Motion (@CPA) (dir / mph) (7)	(8)
1	1893 Aug 24	Unnamed	17 /	130	98	N /	23
2	1893 Aug 29	Unnamed	56 /	310	79	NE /	29
3	1903 Sep 16	Unnamed	53 /	238	78	NW /	14
4	1904 Sep 15	Unnamed	45 /	139	75	NE /	53
5	1936 Sep 19	Unnamed	88 /	132	96	NE /	25
6	1938 Sep 21	Unnamed	52 /	098	96	N /	51
7	1944 Sep 15	Unnamed	59 /	109	89	NNE /	30
8	1954 Aug 31	Carol	63 /	113	98	NNE /	35
9	1960 Sep 12	Donna	62 /	129	106	NNE /	37
10	1976 Aug 10	Belle	36 /	082	89	NNE /	26
11	1985 Sep 27	Gloria	29 /	153	94	NNE /	43

<u>Notes</u>:

(1) Storm number for this list.

(2) Year, month and date that storm had maximum winds exceeding 74 mph and was closest to Coney Island, New York.

(3) Storms were not formally named before 1950.

(4)-(5) Distance (statute miles) and direction (degrees) from Coney Island to storm when it passed abeam.

(6) Maximum sustained wind speed near storm center while center was within 100 statute miles of Coney Island. This is not necessarily the wind recorded at a given site.

(7)-(8) Storm heading and forward speed (mph) at hour of closest point of approach.

hurricanes. They found that the mean absolute error in surge height calculated by SLOSH was 1.4 ft. Although the error range was from -7.1 ft to +8.8 ft, the standard deviation was only 2.0 ft and 79% of the errors lay within one standard deviation of the mean error, -0.3 ft. (On the average, modeled values were slightly less than those observed.)

Because of this skill in calculating storm surge, the SLOSH model was used to create maps of surge flooding in the Long Island Sound basin for use in evacuation planning. The model was supplied with data from hypothetical storms and the resulting surge calculations were composited to produce maps of the maximum envelope of water. This section details why these calculations were made and how the compositing was done.

Storm surge height, at any particular location, partly depends on distance between that site and the storm's center. For a single storm, the model would produce a map of surge height for the modeled period of time (usually 72 hours), with values valid for only that particular storm track. If there were two storms, identical in every respect except that one followed a track parallel to, but separated from the other by 50 miles,[1] and if the model was run with first one and then the other storm, and a comparison made of surge values, then very likely there would be geographical sites with surge values from one storm that differed markedly from those modeled for the other storm. When preparing plans for emergency evacuation, this dependency of surge height on storm track can be troublesome. What is needed is surge flooding potential

[1] A difference ("error") of 50 miles in storm track is not very large when compared to the vagaries of tracks of real hurricanes. The average error of 12-hour forecast landfall position, for U.S. Atlantic coast tropical cyclones, during 1970-1979, was about 59 statute miles, while for 24-hour forecasts, landfall position error was about 125 statute miles (Neumann and Pelissier, 1981). Thus, if a storm were forecast to make (eye) landfall at Coney Island, New York, in 24 hours, and if, in fact, it made landfall anywhere between Cape May, New Jersey, and Montauk Point, Long Island, the error in forecast landfall position would be no worse than average.

for the entire basin; a map of surge heights that depends only on intensity (using the categories defined by Saffir and Simpson), storm speed and direction. To do this, a procedure was adopted that involved making surge calculations for each of an ensemble of 3 to 14 storms; in an ensemble, all storms had the same intensity, speed and heading. Storm tracks were separated by 15 miles. The maximum surge value that was calculated at each grid square from any storm in the ensemble was extracted and saved. After this procedure was performed for all grid squares, the result was a basin map depicting the "maximum envelope of water," or MEOW, for the specified storm category, direction and speed. For the Long Island Sound basin, the hypothetical storms were specified to move in one of six directions, at one of three constant speeds, as summarized in Table 2. There were 11 tracks for the west-northwestward (WNW) moving storms (Figure 5), 13 tracks for the northwest-bound (NW) storms (Figure 6), 14 tracks for the north-northwest (NNW) storm headings (Figure 7), 11 tracks for the northward (N) moving storms (Figure 8), up to 9 tracks for the north-northeastward (NNE) storm headings (Figure 9), and up to 7 tracks for storms heading northeastward (NE), in Figure 10. In total, 533 hypothetical storm tracks were run, using the SLOSH model, to create the results to be presented below. The selection of directions and speeds was based on advice of hurricane specialists at NOAA's National Hurricane Center.

B. Intensities and Radii of Maximum Winds of Hypothetical Storms

Most hurricanes weaken after making landfall because the central pressure increases (the storm "fills") and the RMW tends to increase. Table 3 summarizes pressure filling and RMW increases with time for the hypothetical storm runs. These rates of change were based partly on the work of Schwerdt et al. (1979). Storms heading northeastward were modeled to not undergo filling or to change RMW.

Table 2. *Long Island Sound Basin's hypothetical storms:* Directions, speeds, (Saffir/Simpson) intensities, number of tracks and the number of runs.

Direction	Speed (mph)	Intensities	Tracks	Runs
WNW	20	1 through 4	11	44
NW	20	1 through 4	13	52
NNW	20, 40, 60	1 through 4	14	168
N	20, 40, 60	1 through 4	11	132
NNE*	20, 40, 60	1, 2, 3, 4	9, 9, 7, 6	93
NE*	20, 40	1, 2, 3, 4	7, 7, 5, 3	44

*Several NNE and NE moving hurricanes near or over land cannot maintain all intensity levels.

Table 3. Time change of pressure difference and radius of maximum wind for hypothetical hurricanes having headings towards the west-northwest, northwest, north-northwest, north or north-northeast in Long Island Sound Basin.

Values of pressure difference (ΔP, millibars) and radius of maximum wind (RMW, statute miles), beginning at time of landfall (LF) of center of storm and every six hours after LF.

	Landfall		LF + 6		LF + 12		LF + 18		LF + 24	
Category	ΔP	RMW	ΔP	RMW	ΔP	RMW	ΔP	RMW	ΔP	RMW
1	20	30	14	30	10	30	10	35	10	40
2	40	30	31	30	22	30	13	35	10	40
3	60	30	48	30	36	30	24	35	12	40
4	80	30	65	30	50	30	35	35	20	40

C. Initial Water Height

Based on observations from tide gages in the area of this basin, tidal anomalies of about +1 ft MSL before arrival of a hurricane are not uncommon. Thus, all SLOSH runs of hypothetical hurricanes were supplied with initial datums of +1 ft MSL. In an actual hurricane, if tide gage data in this basin indicate that there is no tide anomaly, then subtract 1 ft from the modeled values found in the maps (below).

D. The "MEOW" Figures

There are 52 MEOWS. They use the distorted geography mentioned in Section 2 and are presented in the Appendix. The contours represent the height of water above mean sea level, in 1-ft increments. The shaded areas indicate land areas that were modeled to have been inundated.

The MEOW figures are grouped by direction: west-northwestbound storms are in Figures A1-A4, northwestbound storms' MEOWS are in Figures A5-A8, north-northwestbound in Figures A9-A20, northbound in Figures A21-A32, north-northeastbound storms' MEOWS in Figures A33-A44, and northeast-moving storms' MEOWS are in Figures A45-A52.

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8. APPENDIX: MAXIMUM ENVELOPES OF WATER (MEOW) SERIES "A"

Figure	MEOW
A- 1	West-northwestbound, 20 mph, category 1 hurricane.
A- 2	West-northwestbound, 20 mph, category 2 hurricane.
A- 3	West-northwestbound, 20 mph, category 3 hurricane.
A- 4	West-northwestbound, 20 mph, category 4 hurricane.
A- 5	Northwestbound, 20 mph, category 1 hurricane.
A- 6	Northwestbound, 20 mph, category 2 hurricane.
A- 7	Northwestbound, 20 mph, category 3 hurricane.
A- 8	Northwestbound, 20 mph, category 4 hurricane.
A- 9	North-northwestbound, 20 mph, category 1 hurricane.
A-10	North-northwestbound, 20 mph, category 2 hurricane.
A-11	North-northwestbound, 20 mph, category 3 hurricane.
A-12	North-northwestbound, 20 mph, category 4 hurricane.
A-13	North-northwestbound, 40 mph, category 1 hurricane.
A-14	North-northwestbound, 40 mph, category 2 hurricane.
A-15	North-northwestbound, 40 mph, category 3 hurricane.
A-16	North-northwestbound, 40 mph, category 4 hurricane.
A-17	North-northwestbound, 60 mph, category 1 hurricane.
A-18	North-northwestbound, 60 mph, category 2 hurricane.
A-19	North-northwestbound, 60 mph, category 3 hurricane.
A-20	North-northwestbound, 60 mph, category 4 hurricane.
A-21	Northbound, 20 mph, category 1 hurricane.
A-22	Northbound, 20 mph, category 2 hurricane.
A-23	Northbound, 20 mph, category 3 hurricane.
A-24	Northbound, 20 mph, category 4 hurricane.

A-25 Northbound, 40 mph, category 1 hurricane.

A-26 Northbound, 40 mph, category 2 hurricane.

A-27 Northbound, 40 mph, category 3 hurricane.

A-28 Northbound, 40 mph, category 4 hurricane.

A-29 Northbound, 60 mph, category 1 hurricane.

A-30 Northbound, 60 mph, category 2 hurricane.

A-31 Northbound, 60 mph, category 3 hurricane.

A-32 Northbound, 60 mph, category 4 hurricane.

A-33 North-northeastbound, 20 mph, category 1 hurricane.

A-34 North-northeastbound, 20 mph, category 2 hurricane.

A-35 North-northeastbound, 20 mph, category 3 hurricane.

A-36 North-northeastbound, 20 mph, category 4 hurricane.

A-37 North-northeastbound, 40 mph, category 1 hurricane.

A-38 North-northeastbound, 40 mph, category 2 hurricane.

A-39 North-northeastbound, 40 mph, category 3 hurricane.

A-40 North-northeastbound, 40 mph, category 4 hurricane.

A-41 North-northeastbound, 60 mph, category 1 hurricane.

A-42 North-northeastbound, 60 mph, category 2 hurricane.

A-43 North-northeastbound, 60 mph, category 3 hurricane.

A-44 North-northeastbound, 60 mph, category 4 hurricane.

A-45 Northeastbound, 20 mph, category 1 hurricane.

A-46 Northeastbound, 20 mph, category 2 hurricane.

A-47 Northeastbound, 20 mph, category 3 hurricane.

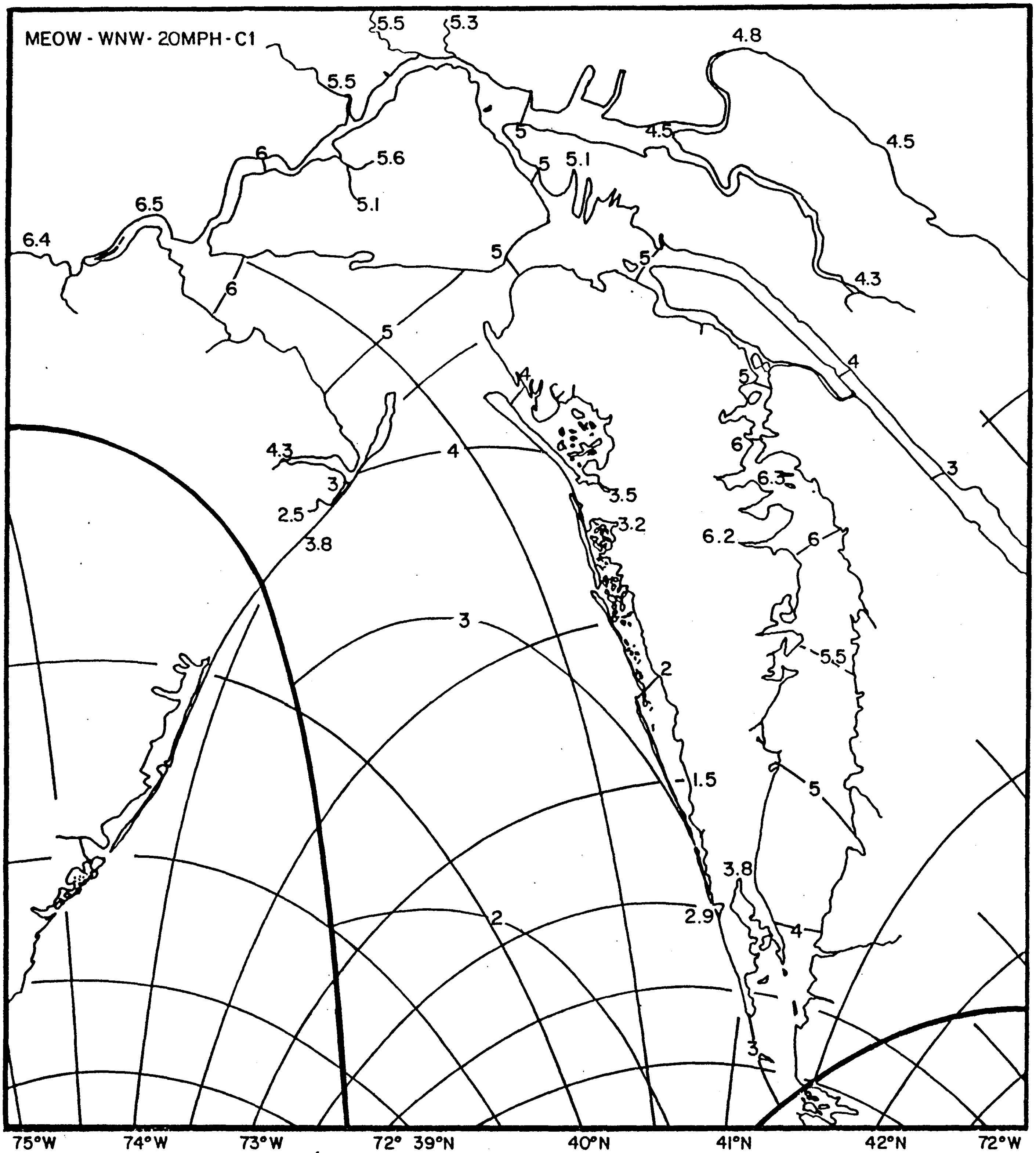
A-48 Northeastbound, 20 mph, category 4 hurricane.

A-49 Northeastbound, 40 mph, category 1 hurricane.

A-50 Northeastbound, 40 mph, category 2 hurricane.

A-51 Northeastbound, 40 mph, category 3 hurricane.

A-52 Northeastbound, 40 mph, category 4 hurricane.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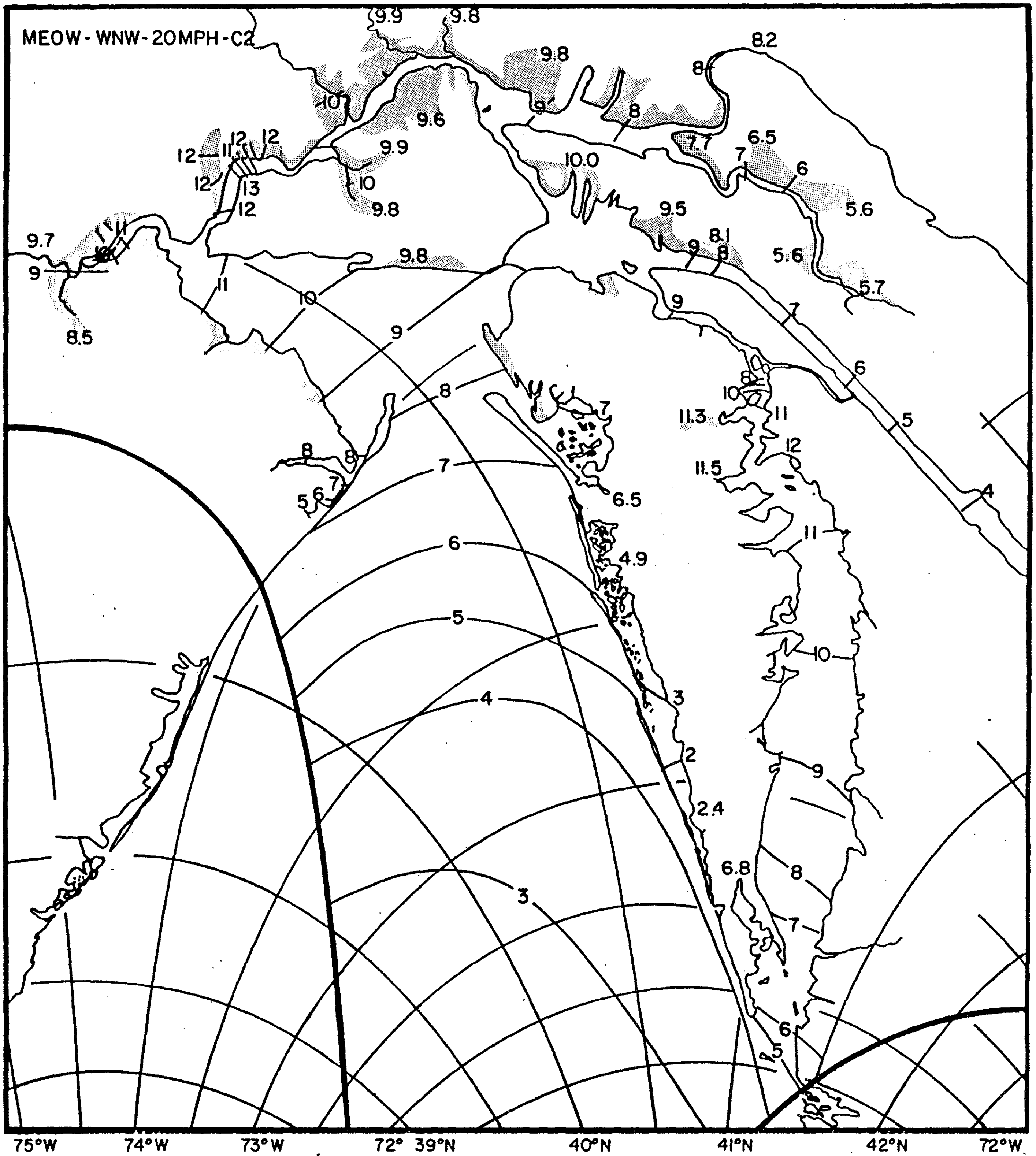
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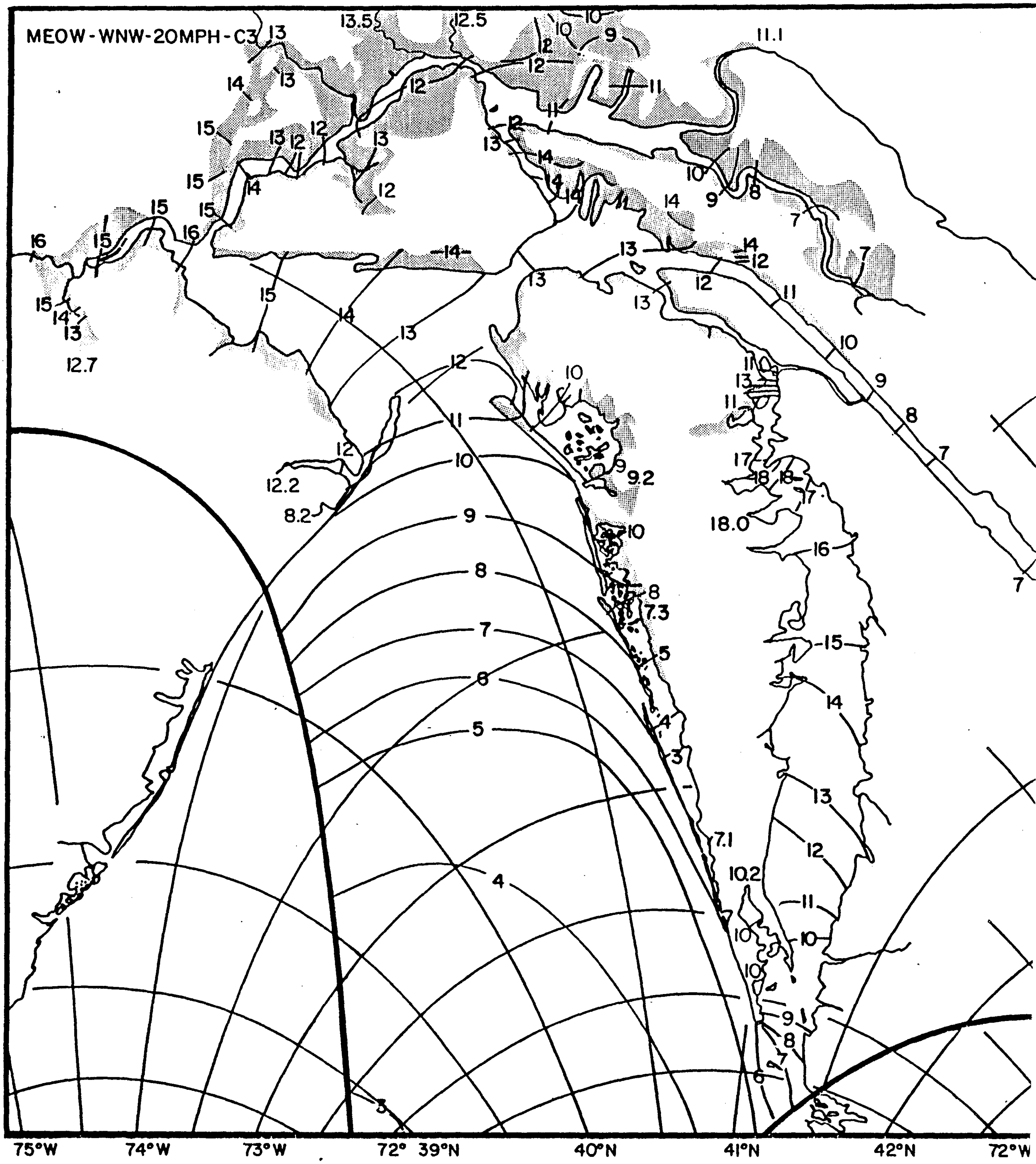
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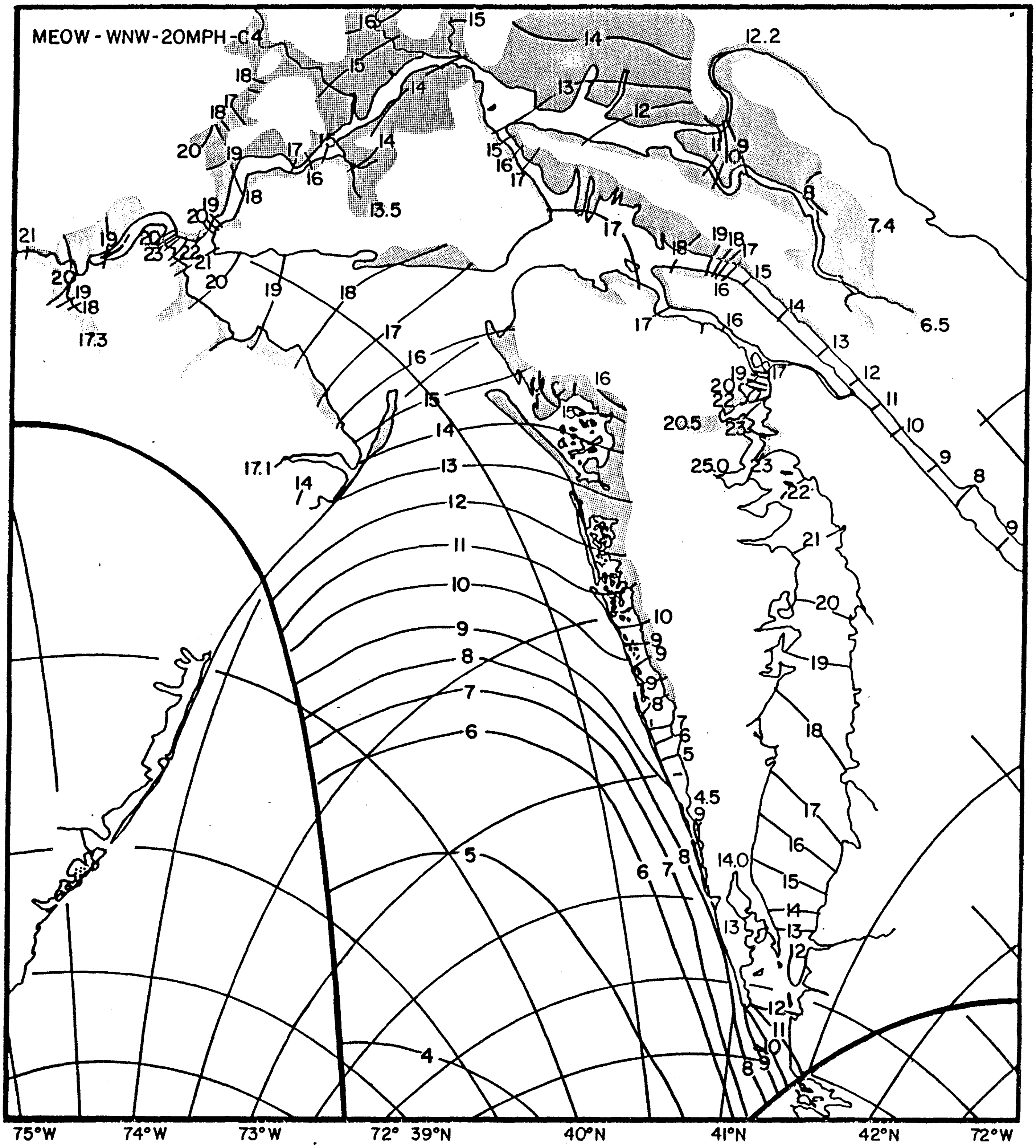
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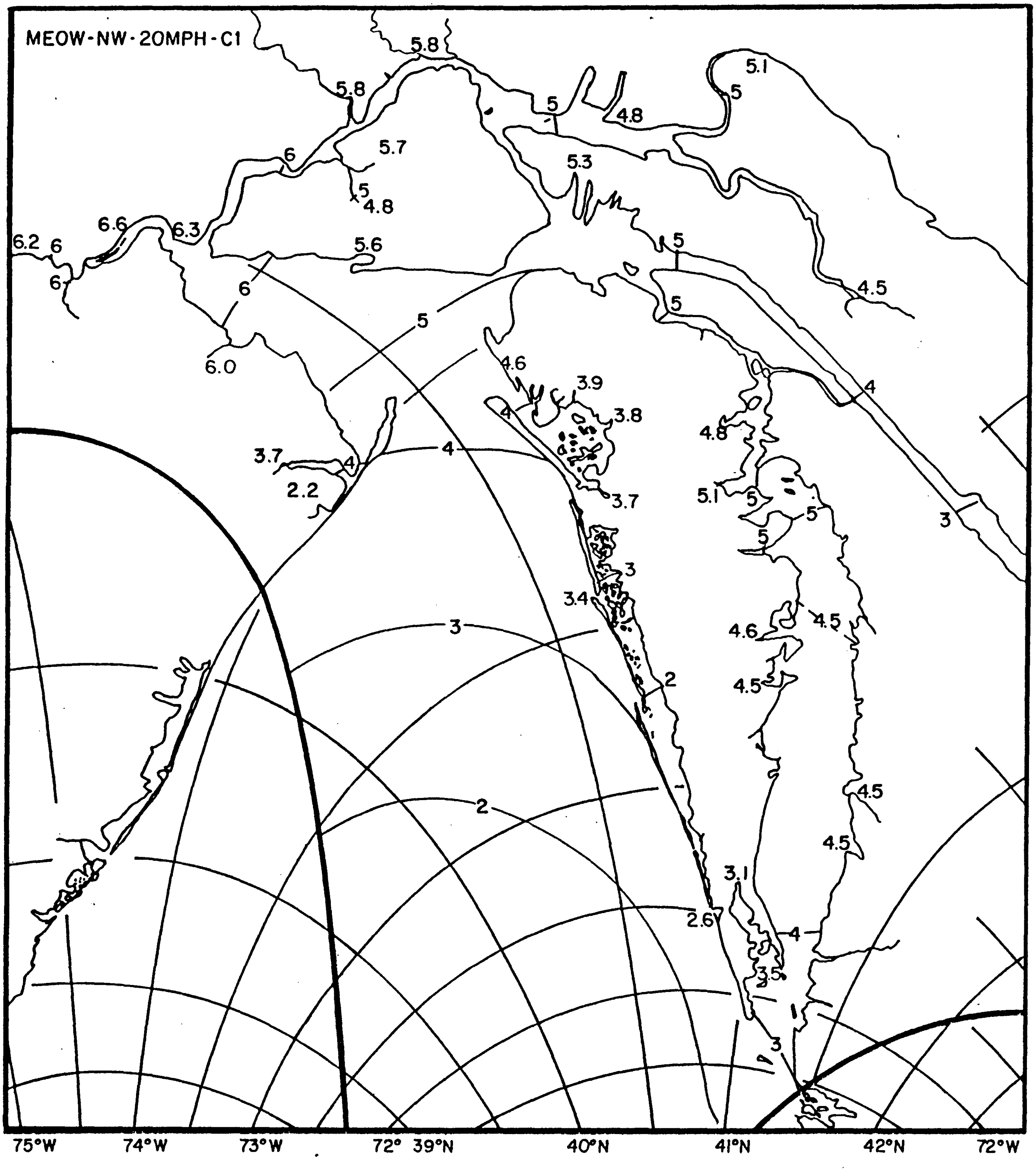

MEOW-NW-20MPH-C1
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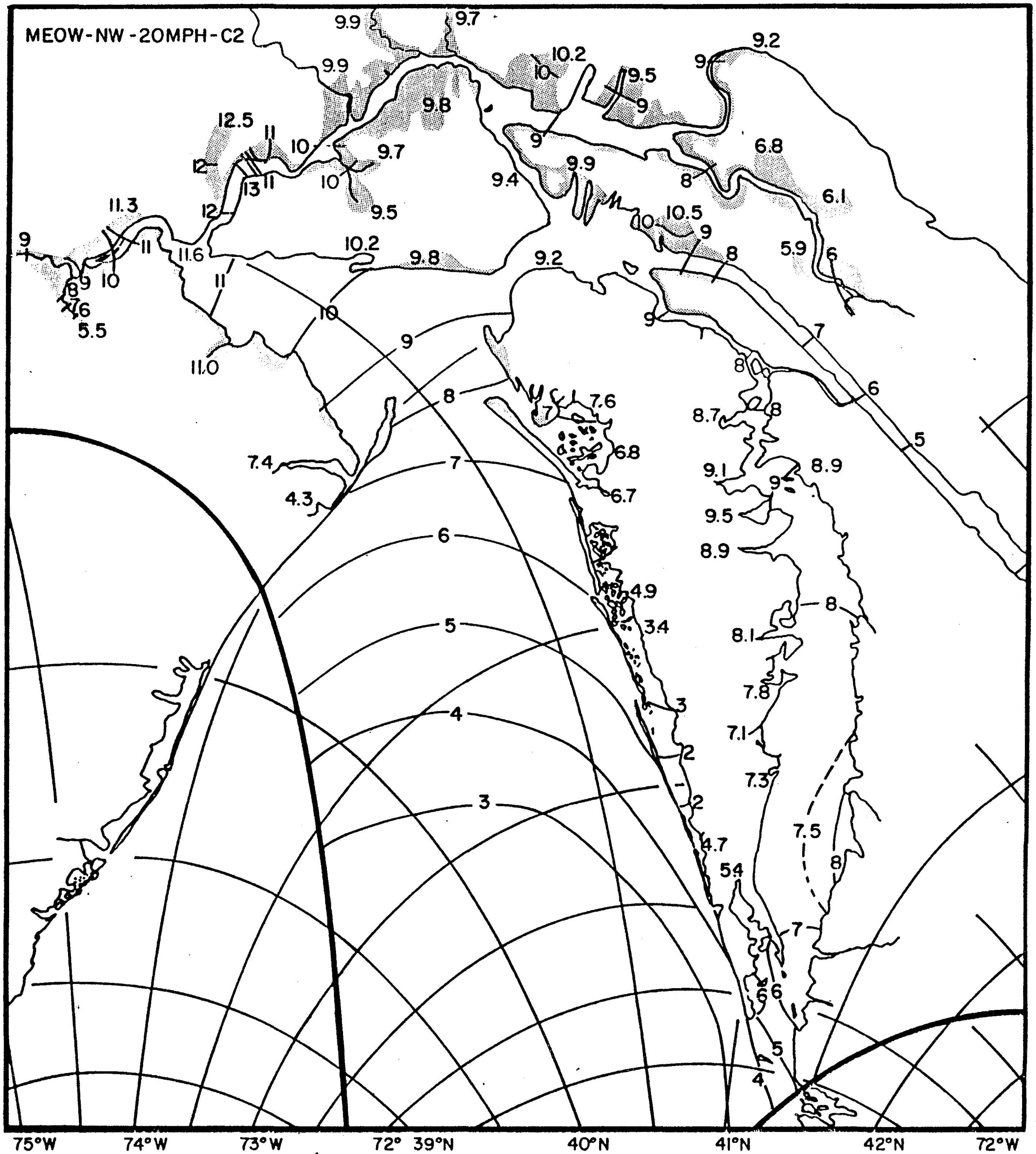
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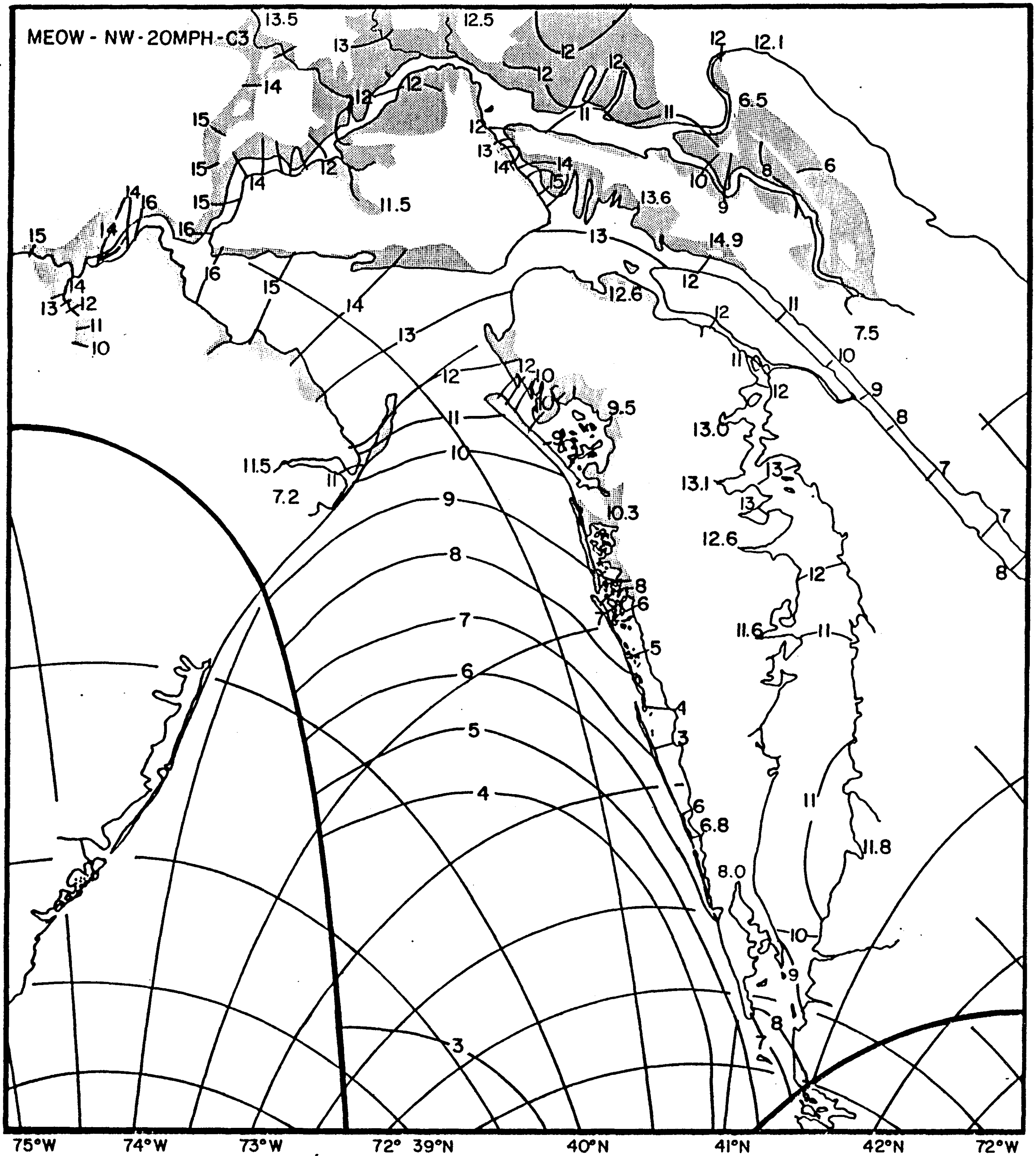
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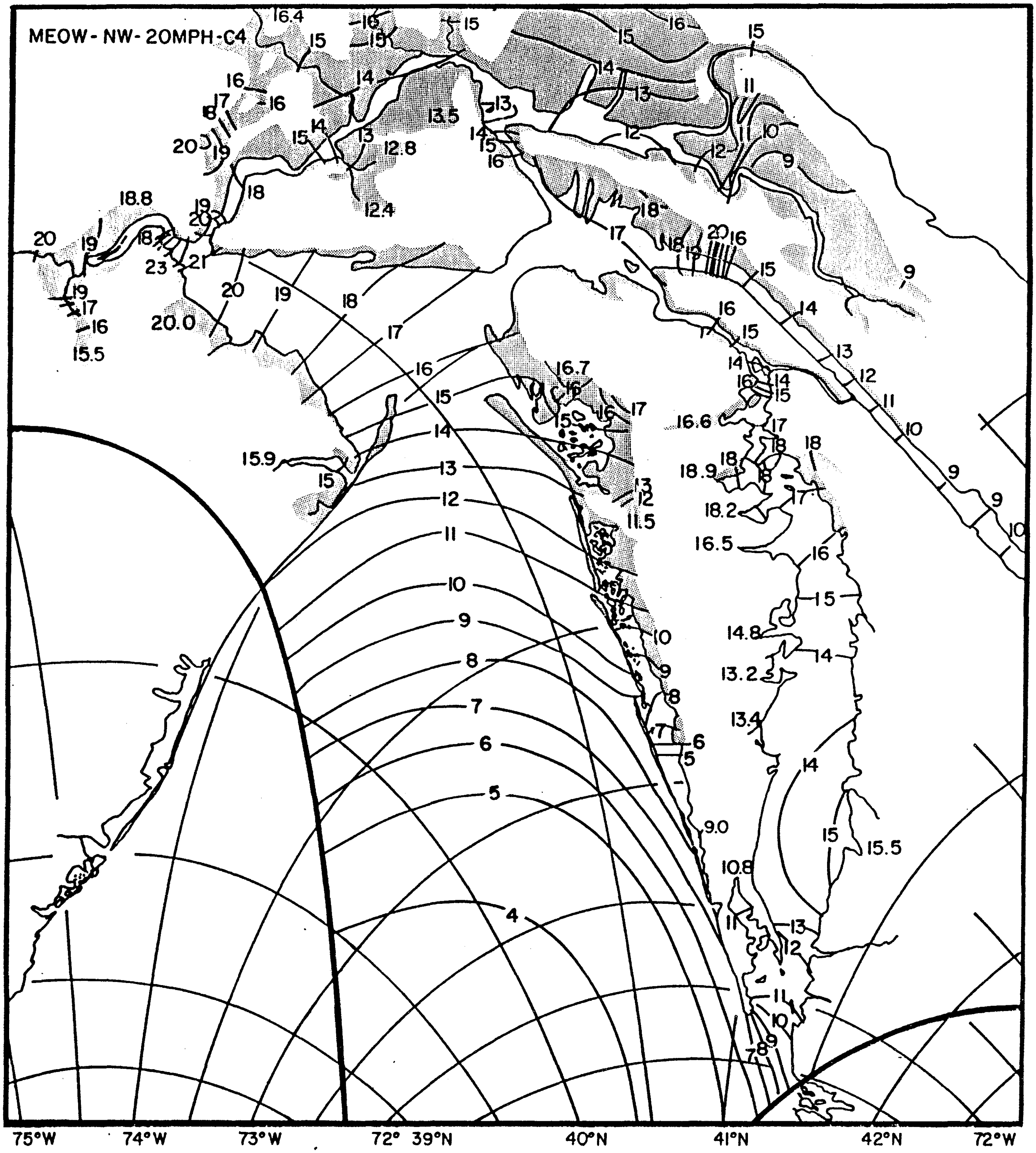
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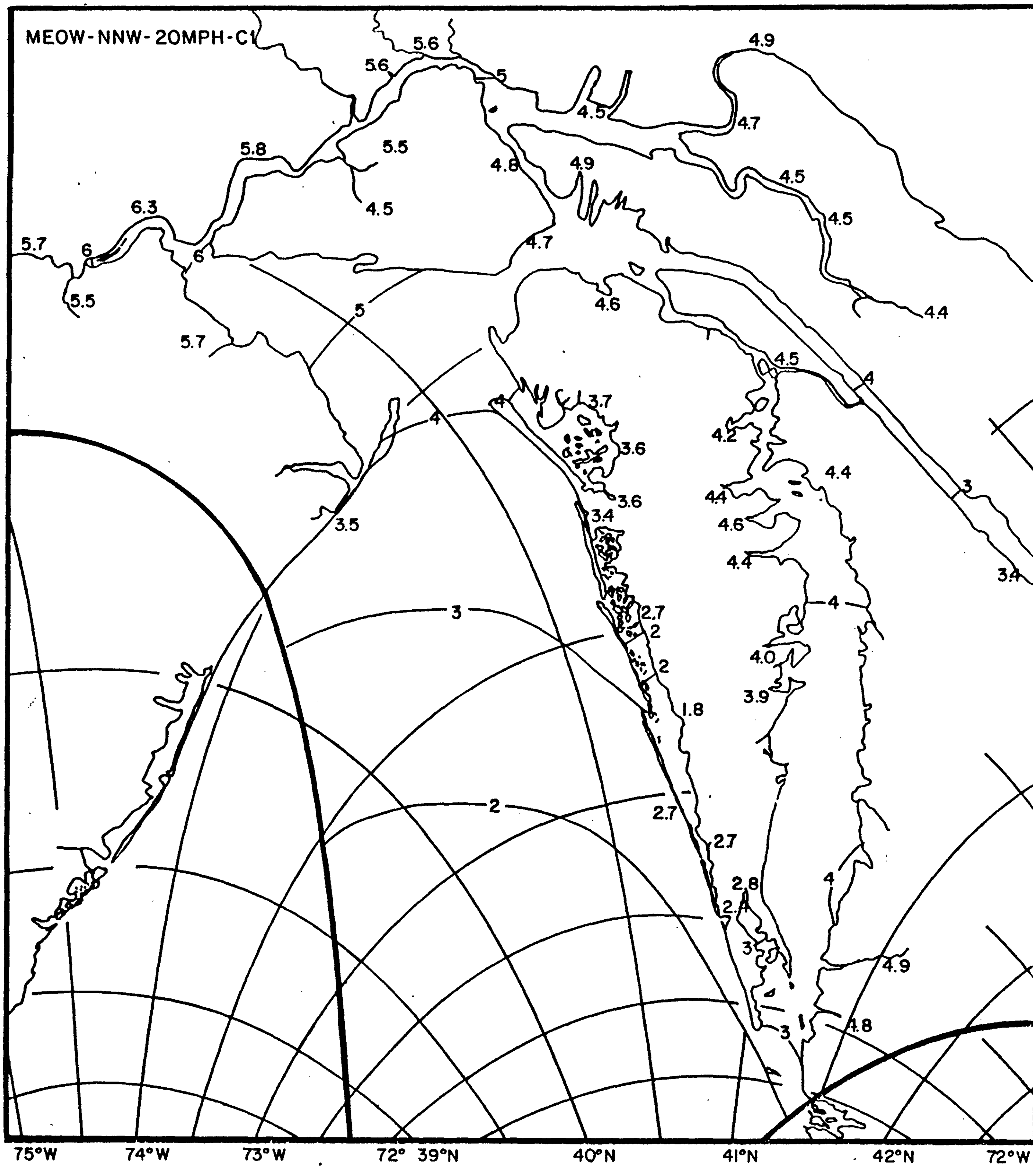
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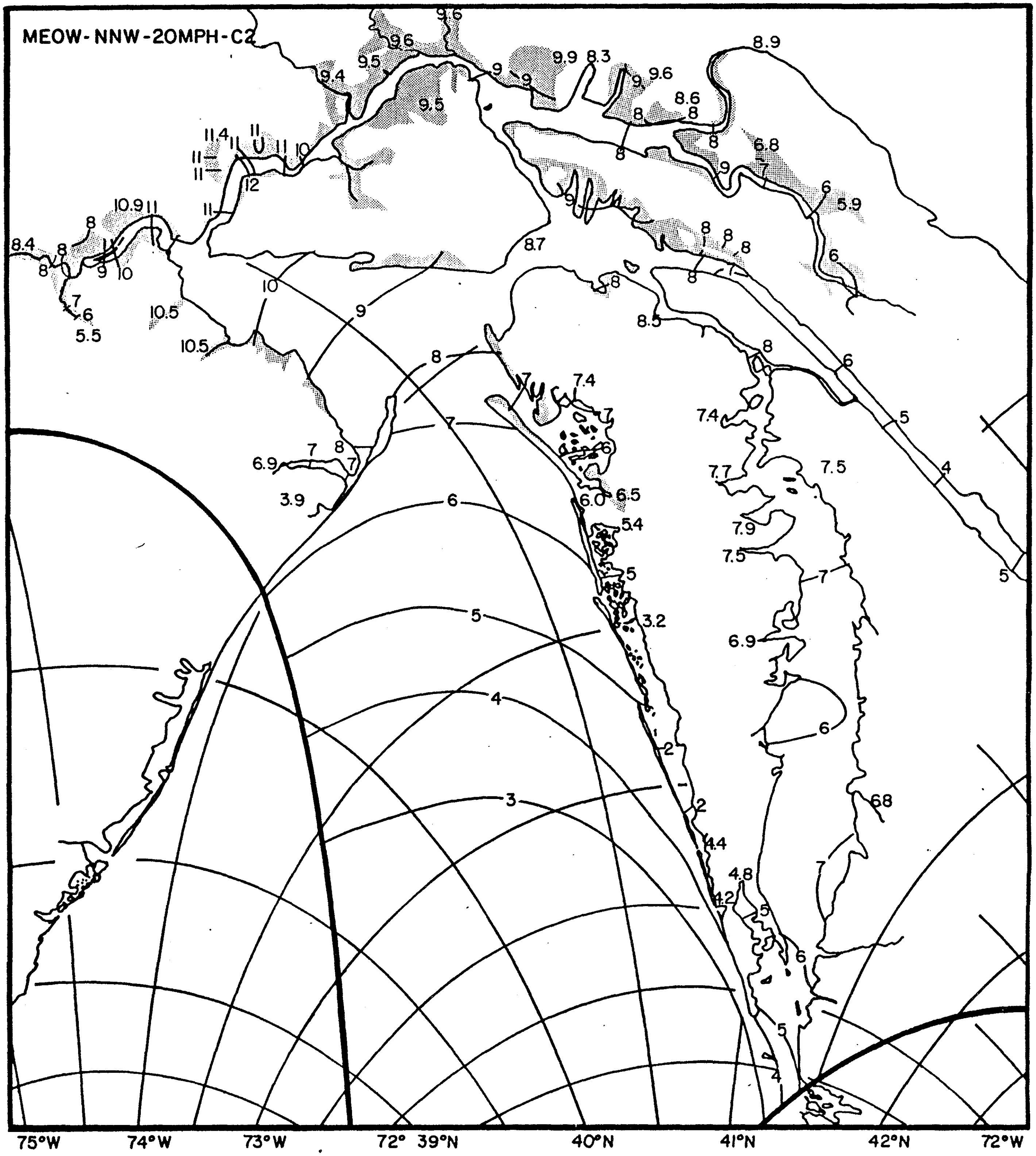
72°W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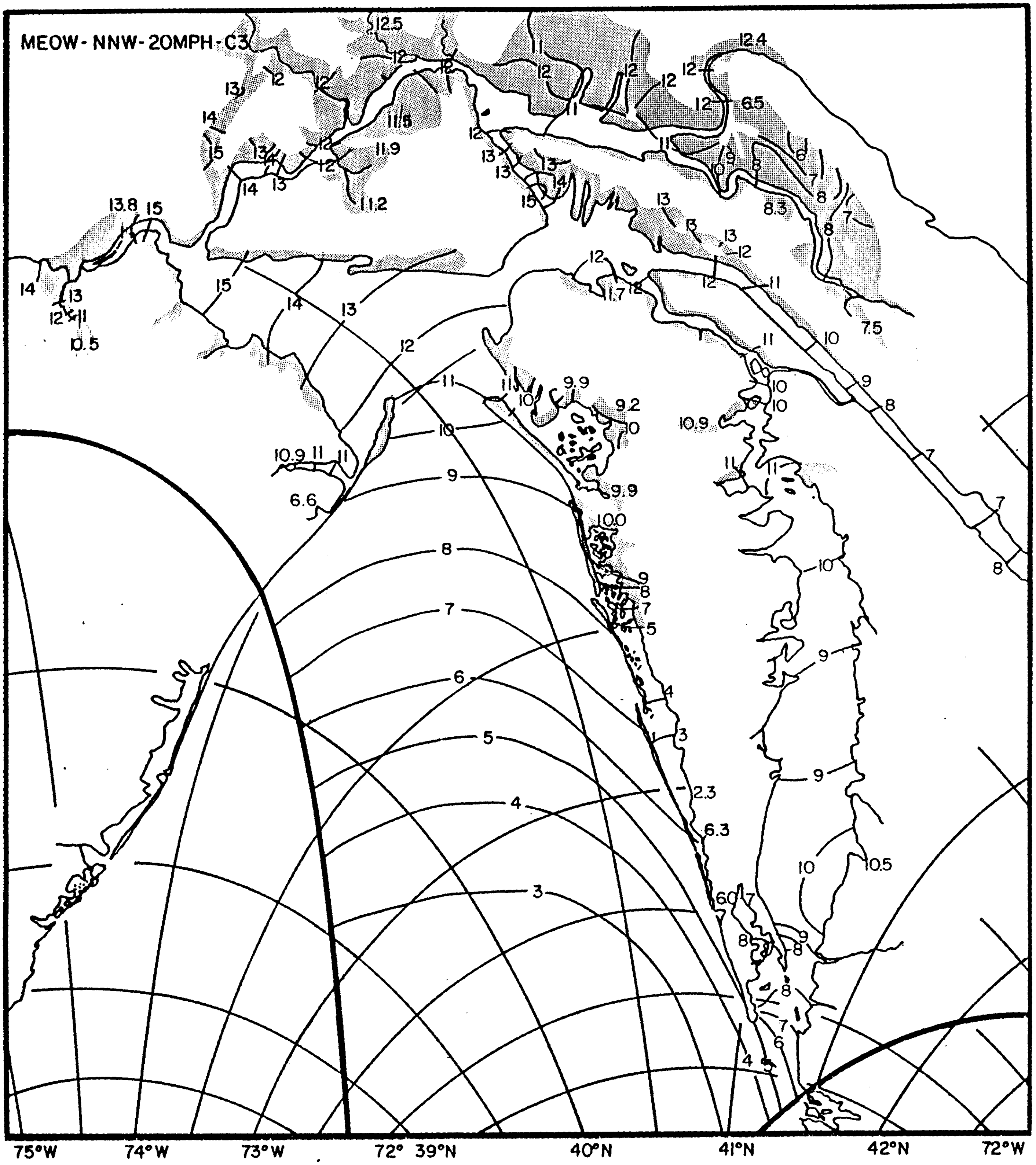
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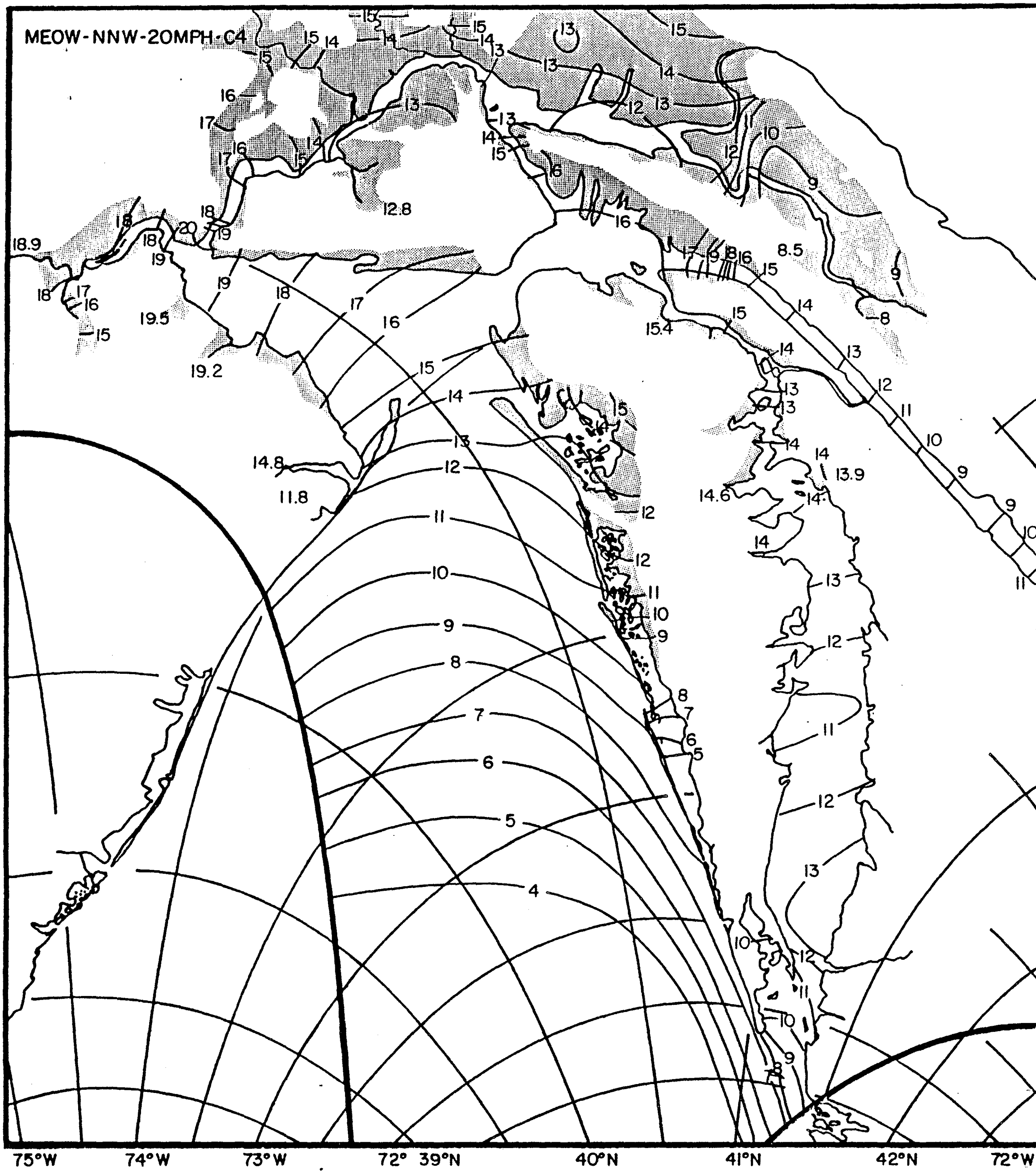
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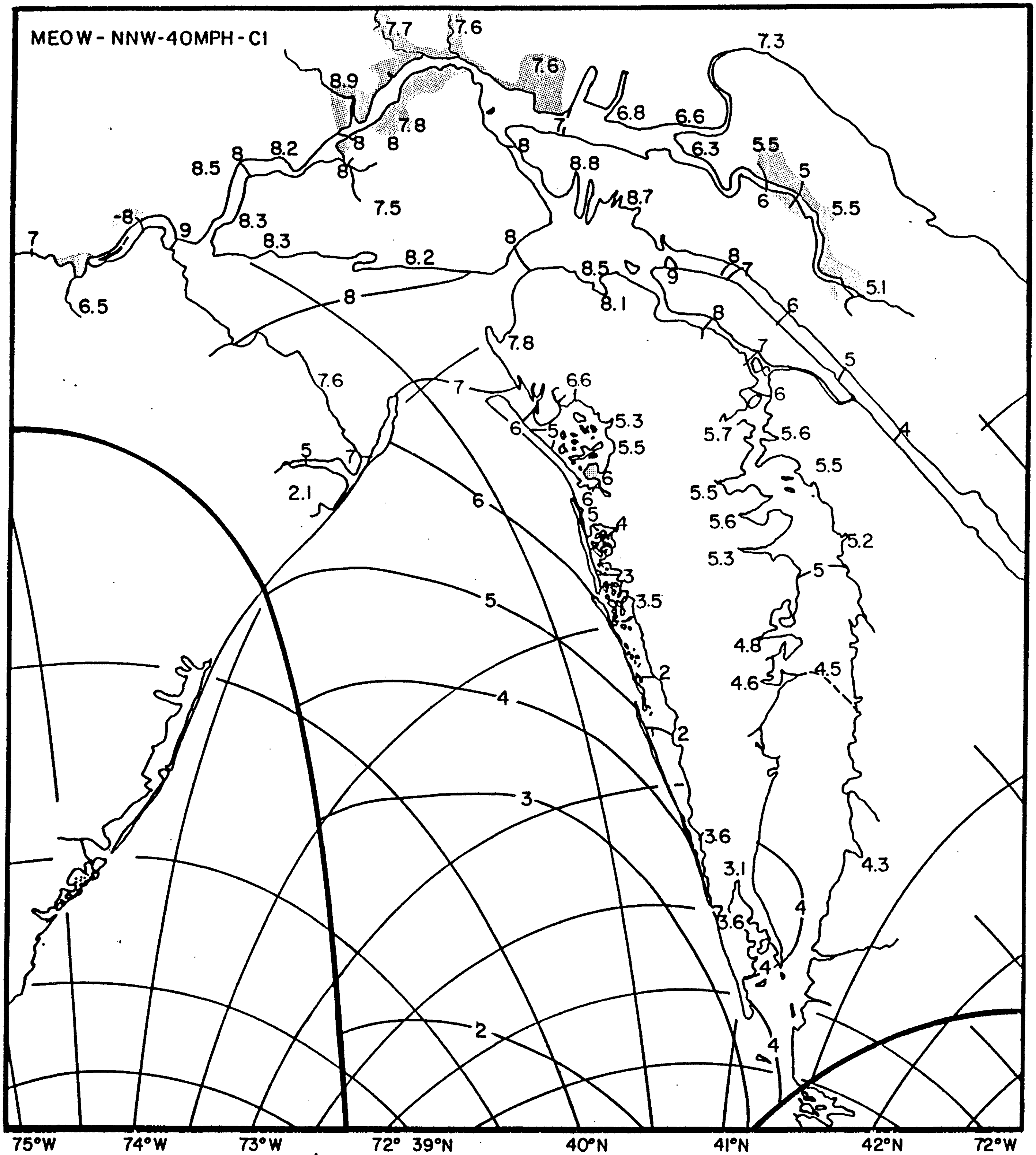
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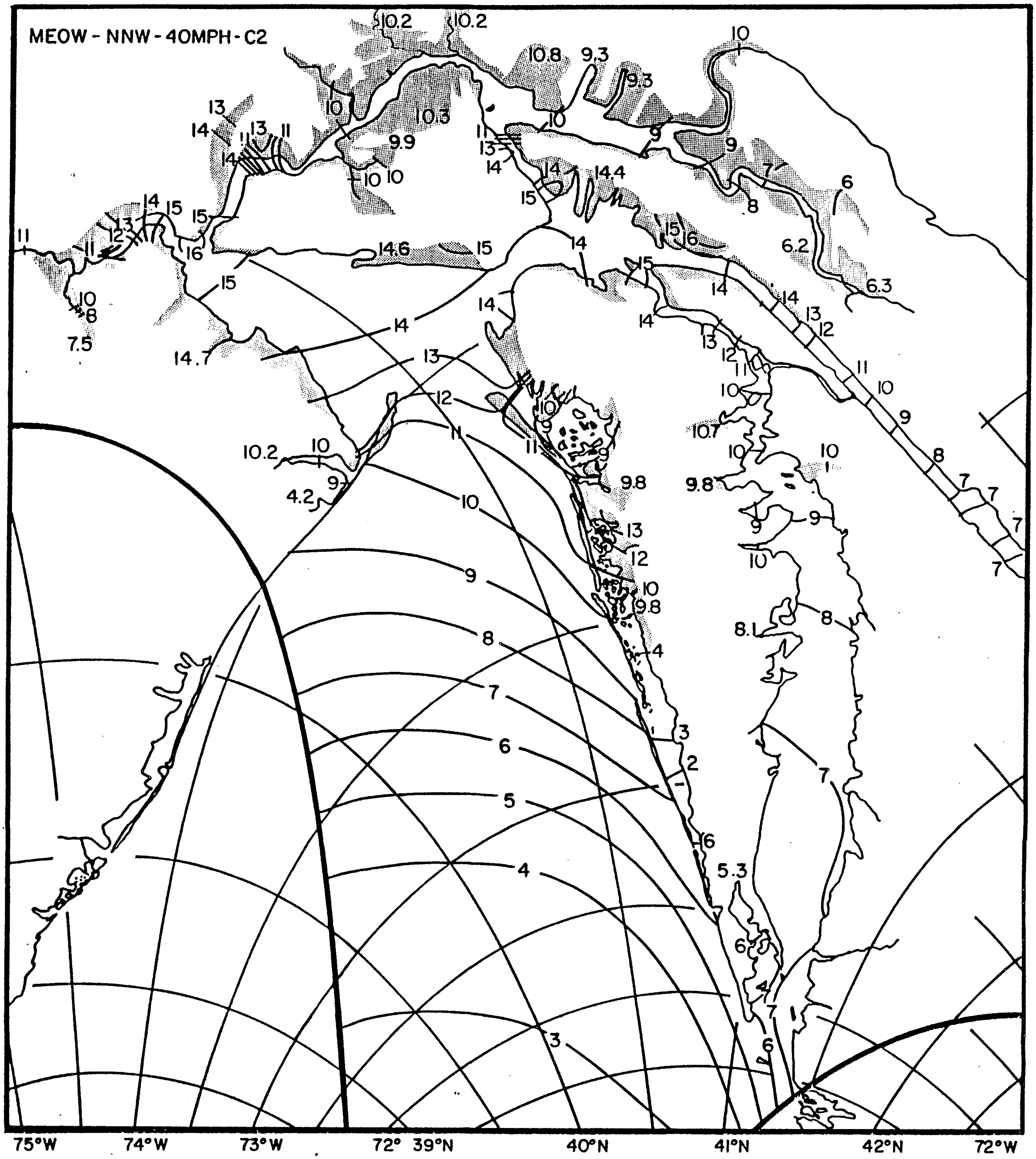
72°W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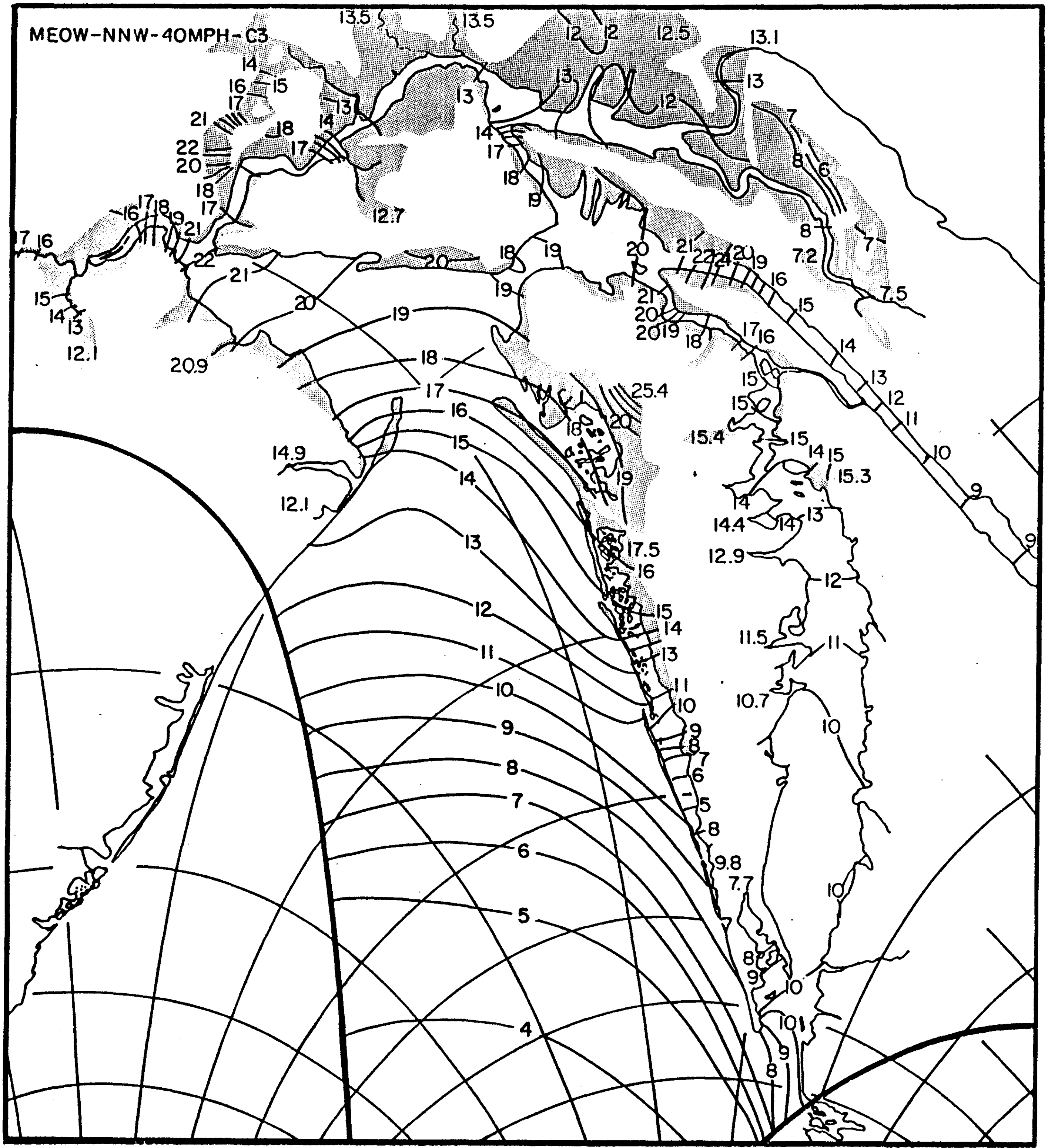
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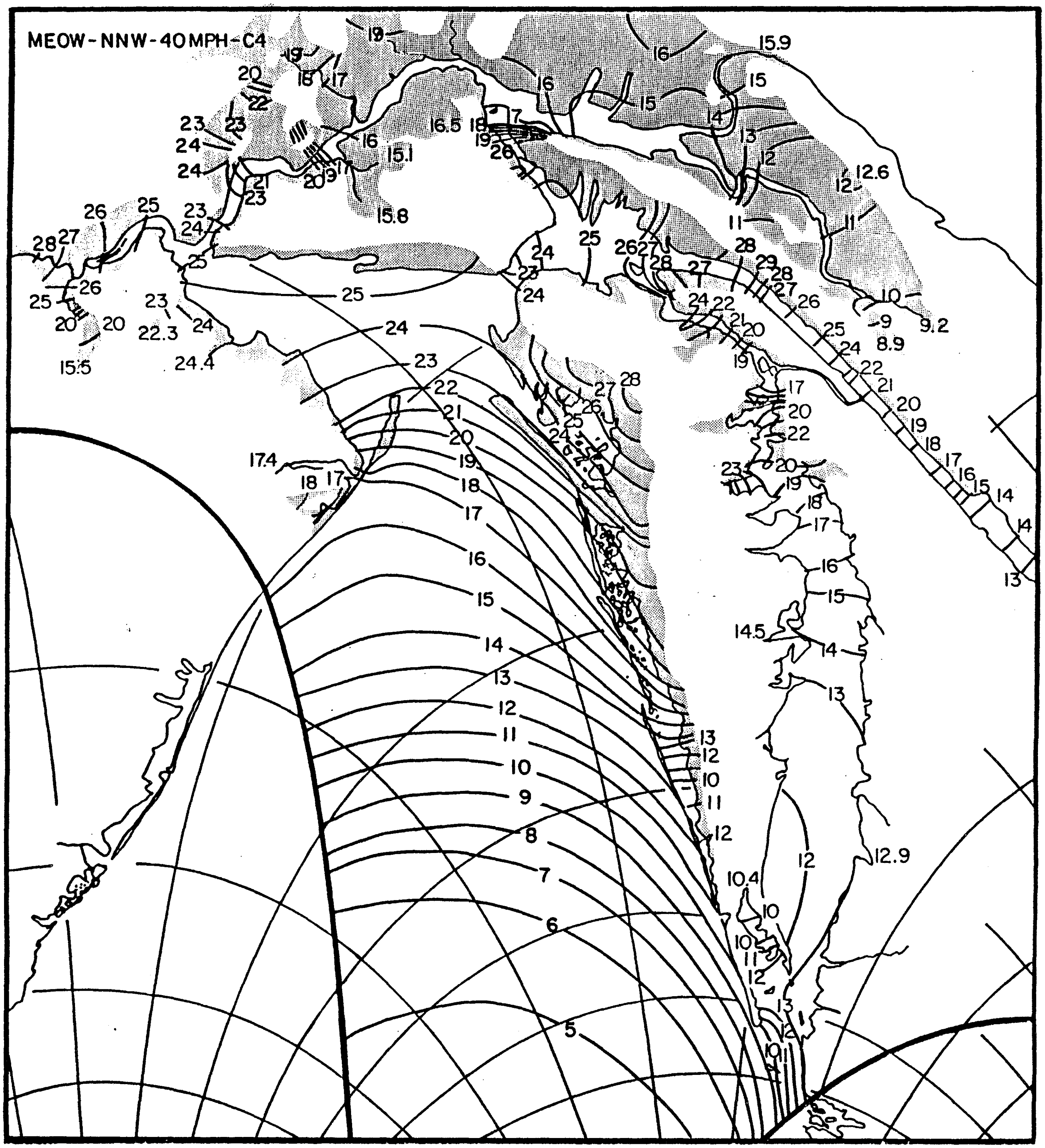
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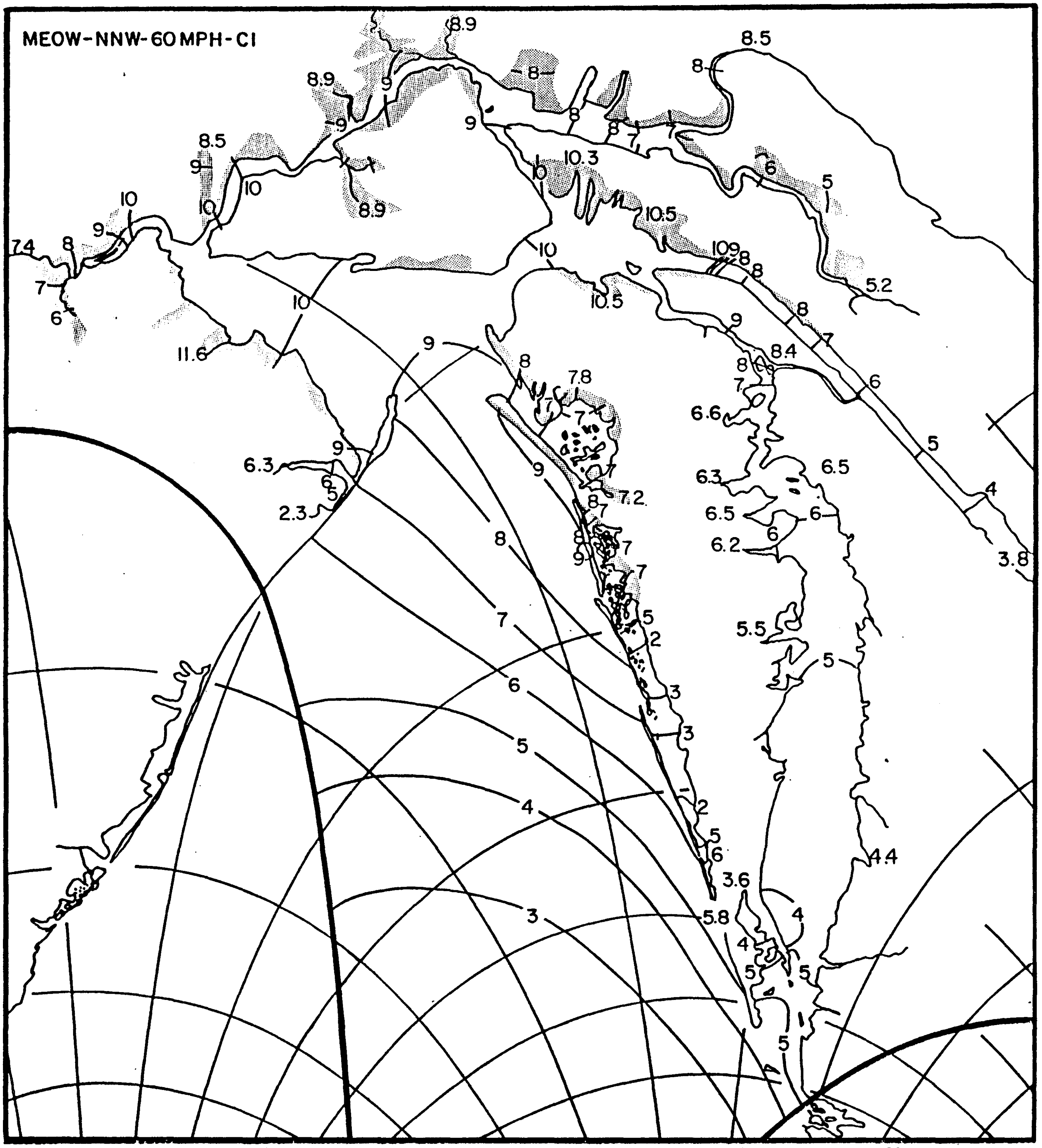
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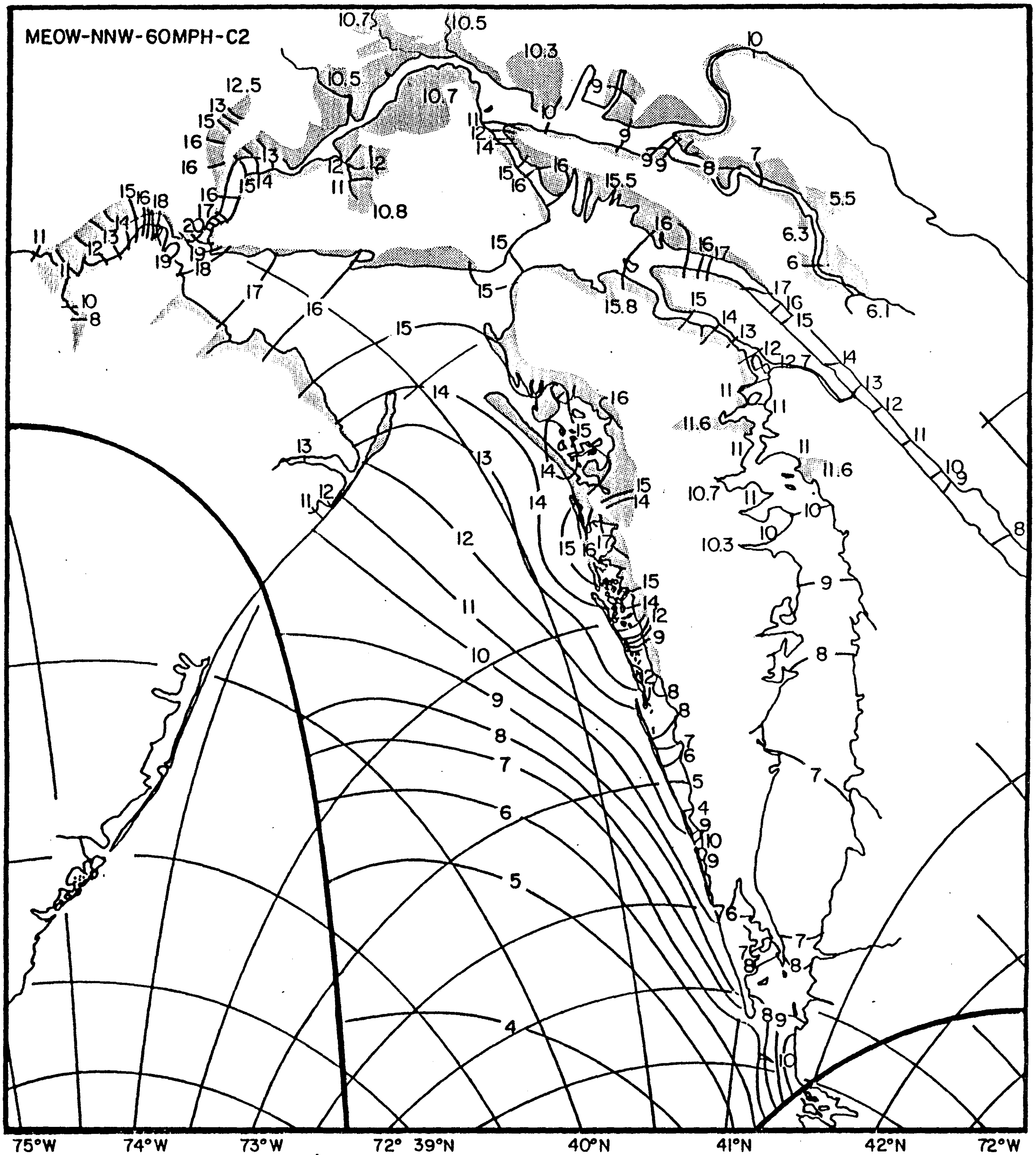
72°W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73°W
72° 39°N
40°N
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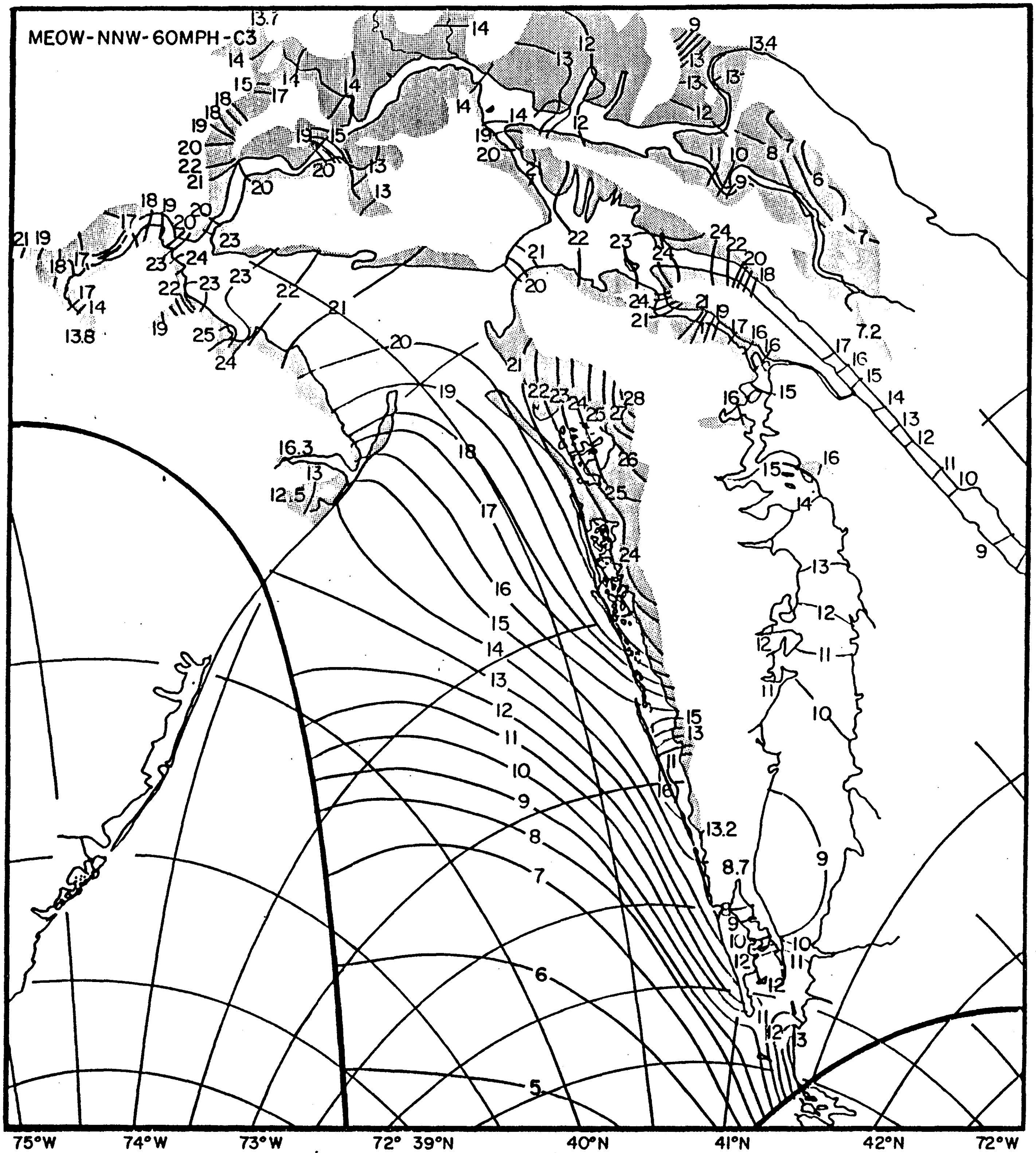
72°W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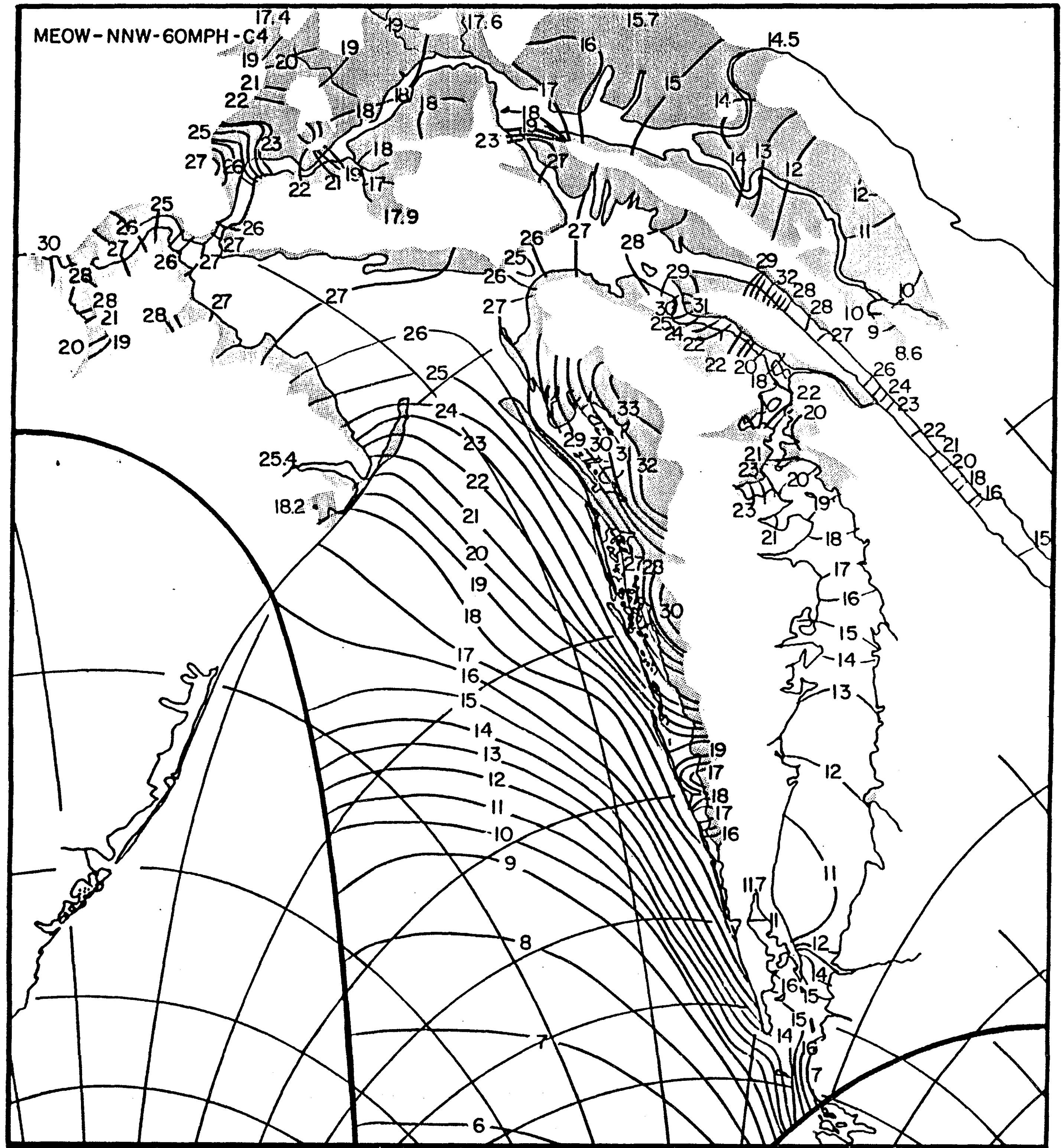
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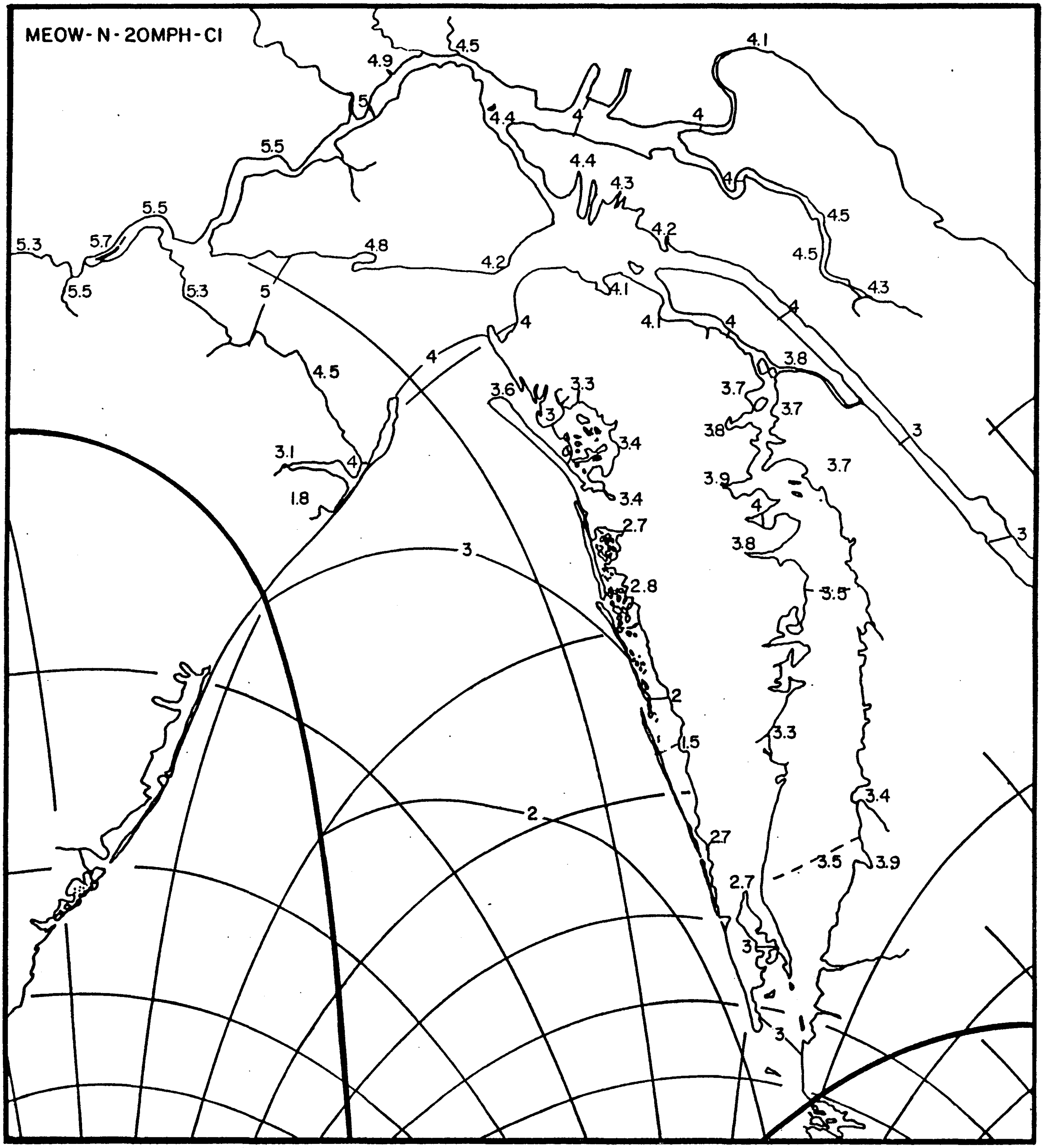
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27
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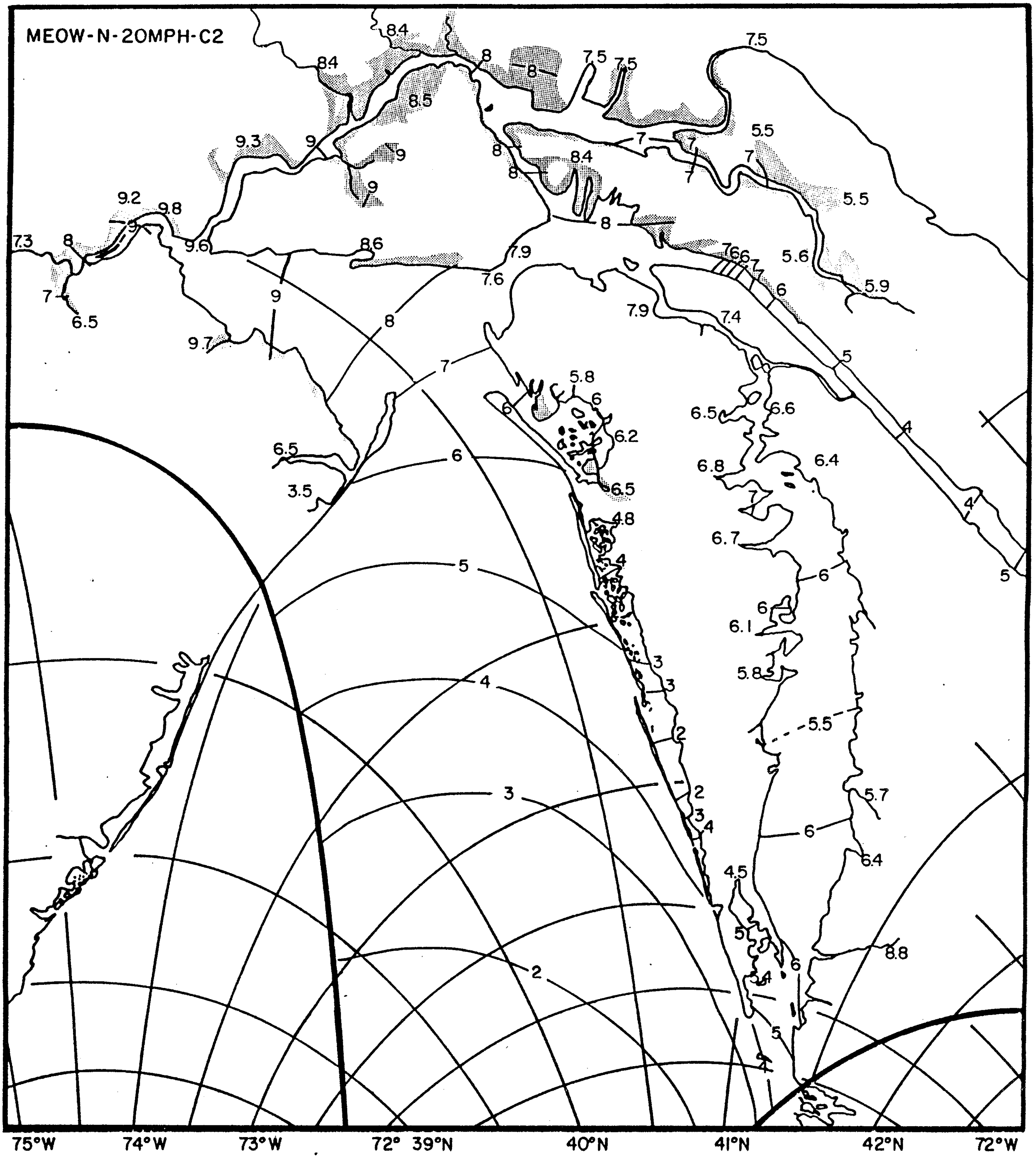
74°W
73°W
72°
39°N
40°N
41°N
42°N
72°W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72° 39°N
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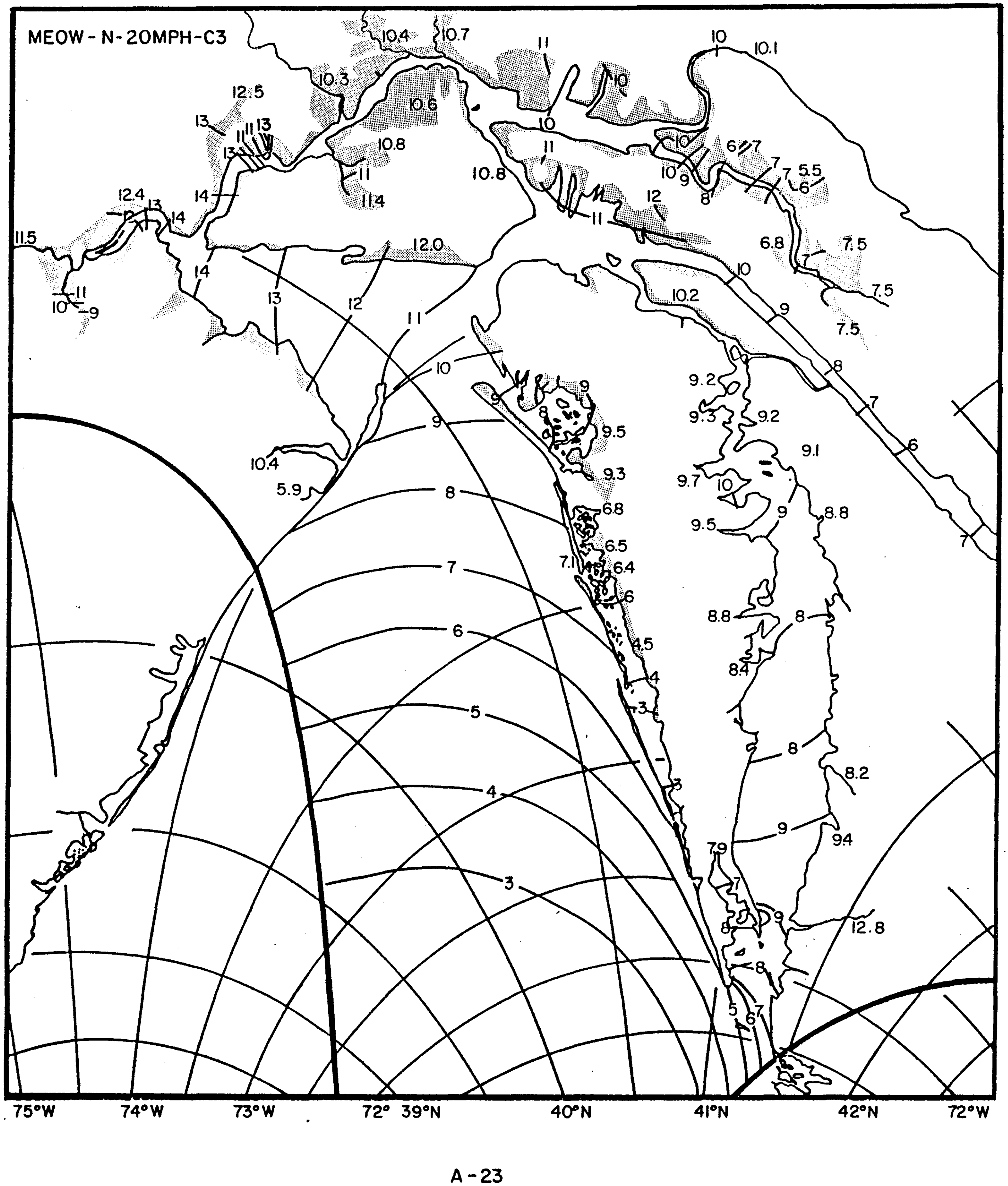
42°N
72°W



MEOW-N-20MPH-C3
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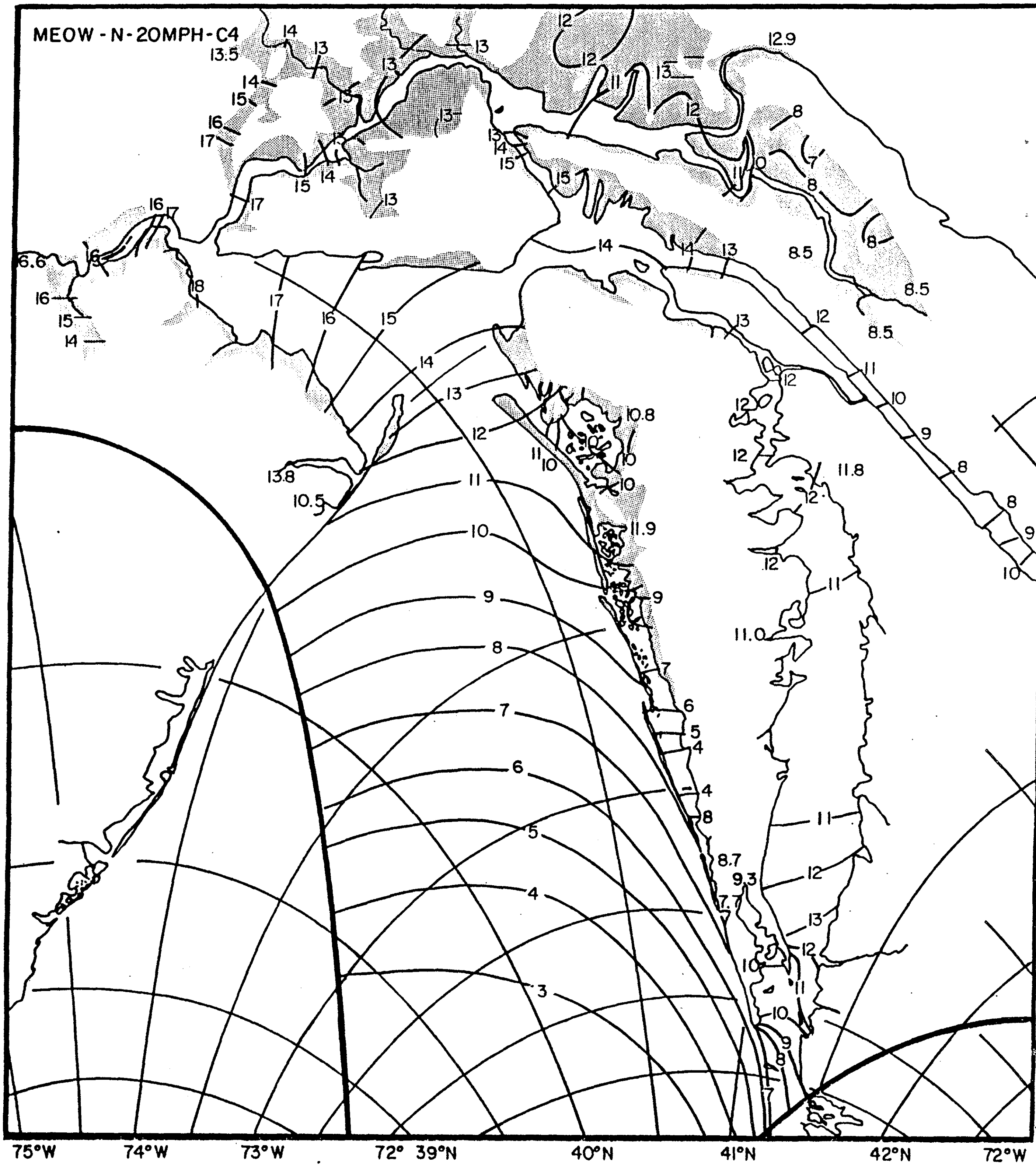
74°W
73°W
72° 39°N
40°N
41°N
42°N
72°W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74°W
73°W
72° 39°N
40°N
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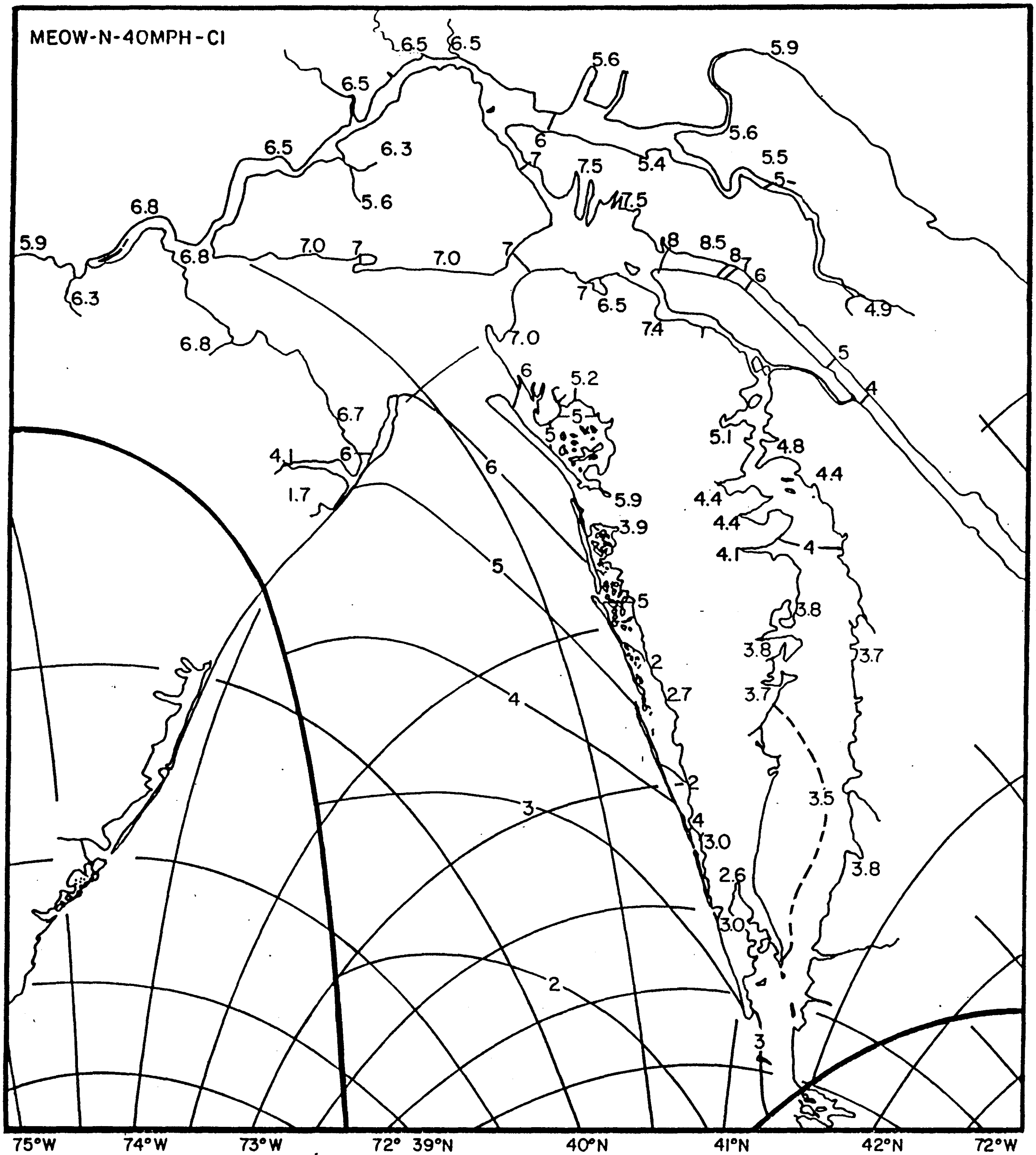
72°W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73°W
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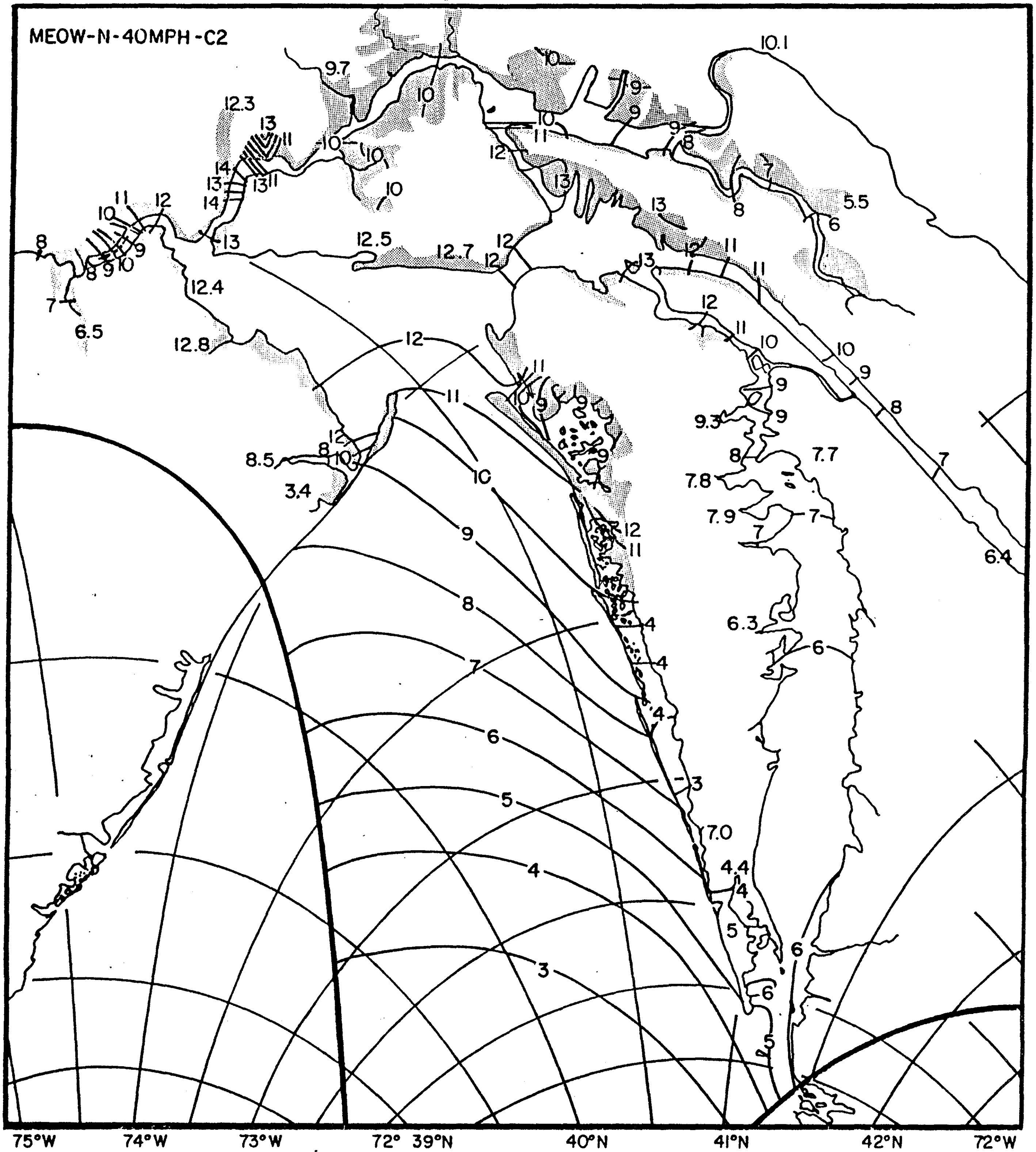
41°N
42°N
72°W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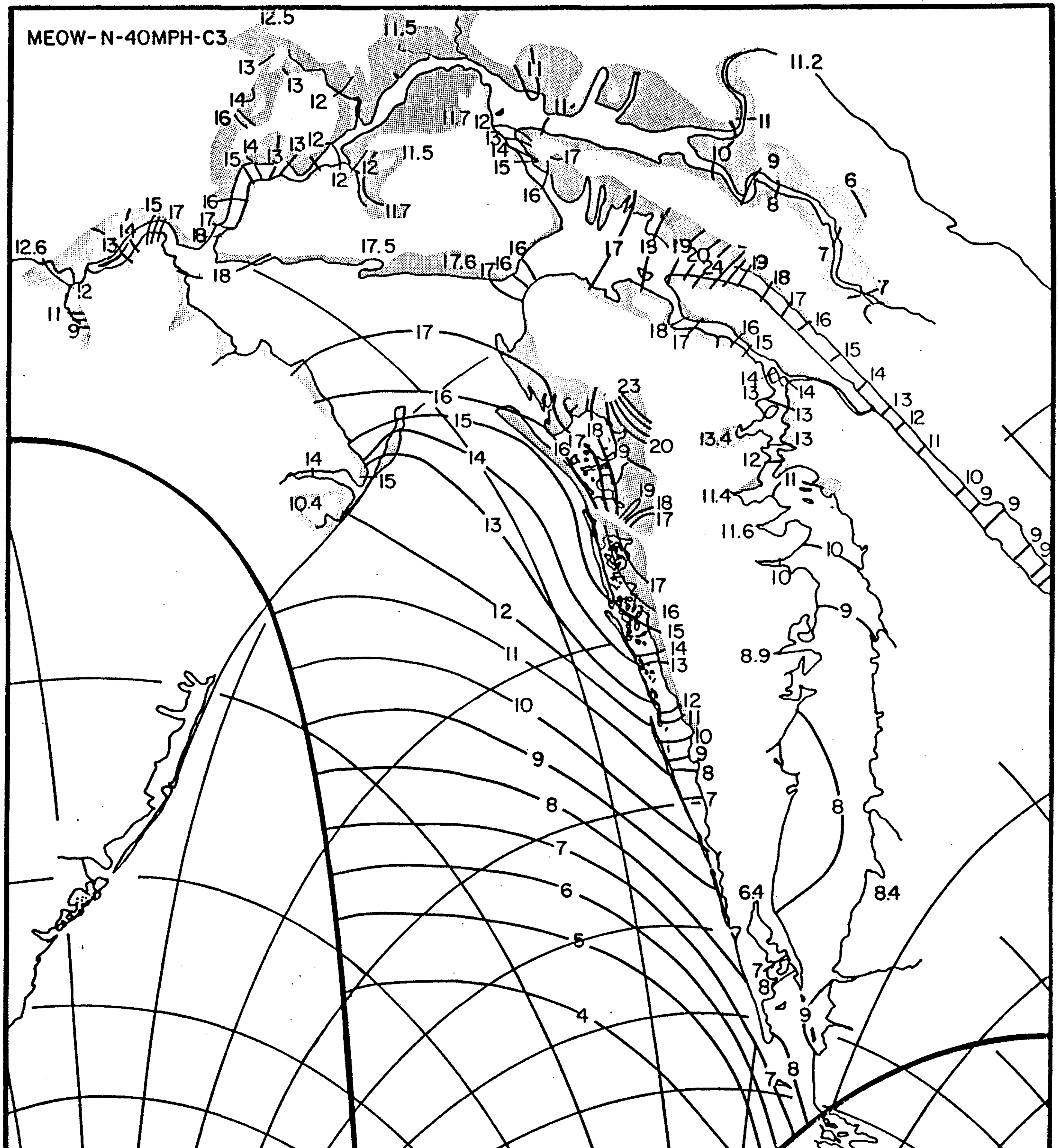
42°N
72°W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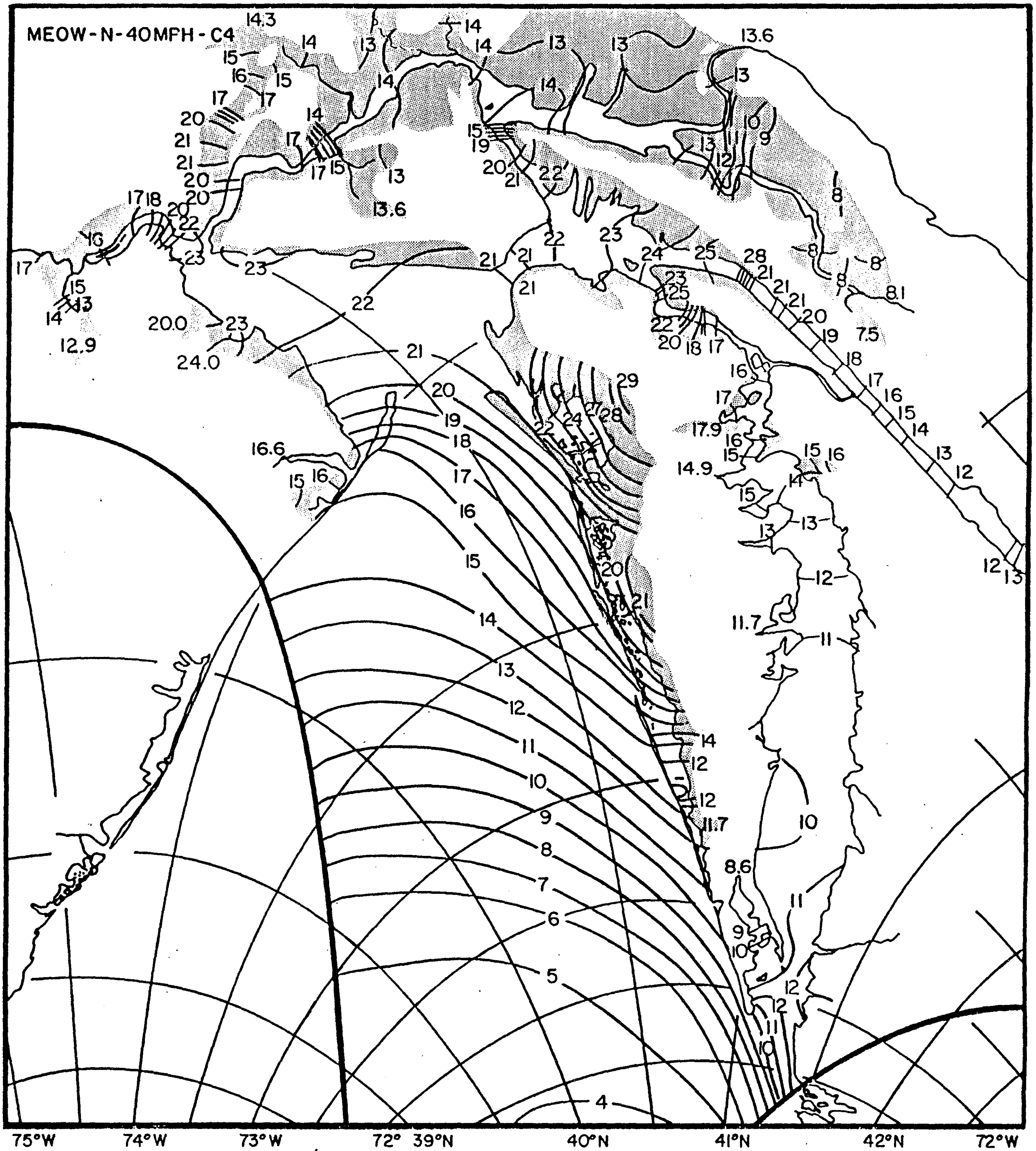
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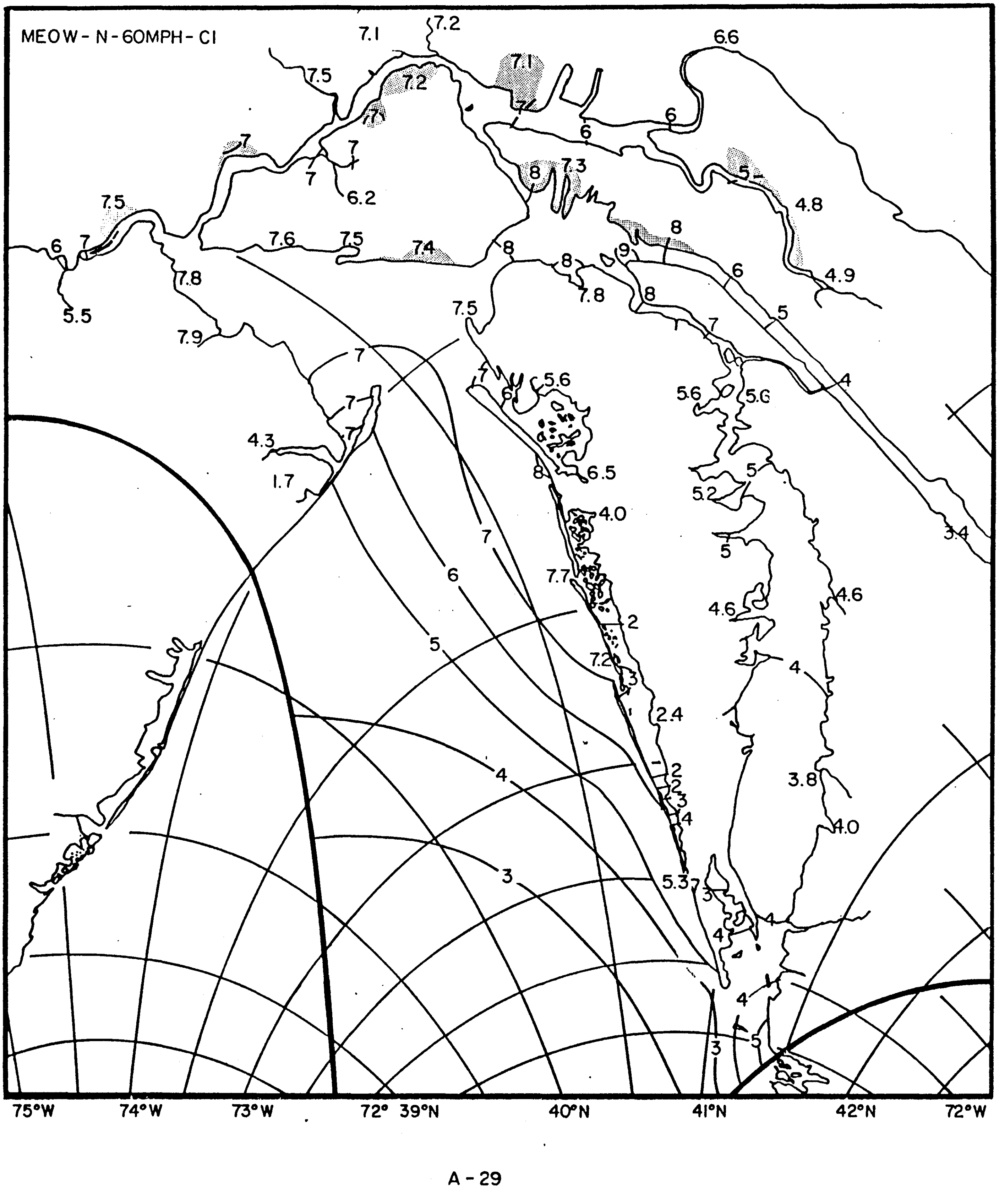

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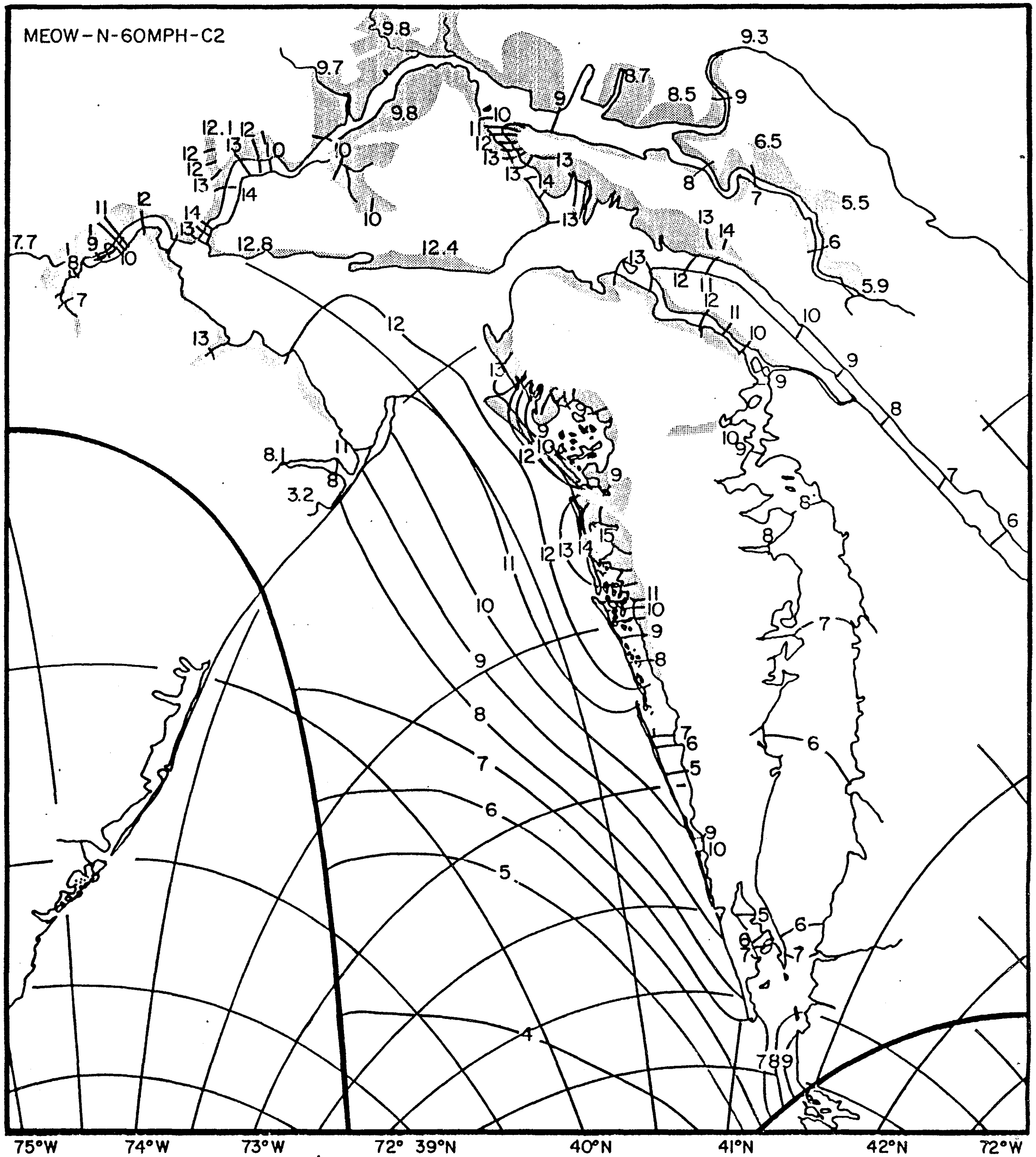
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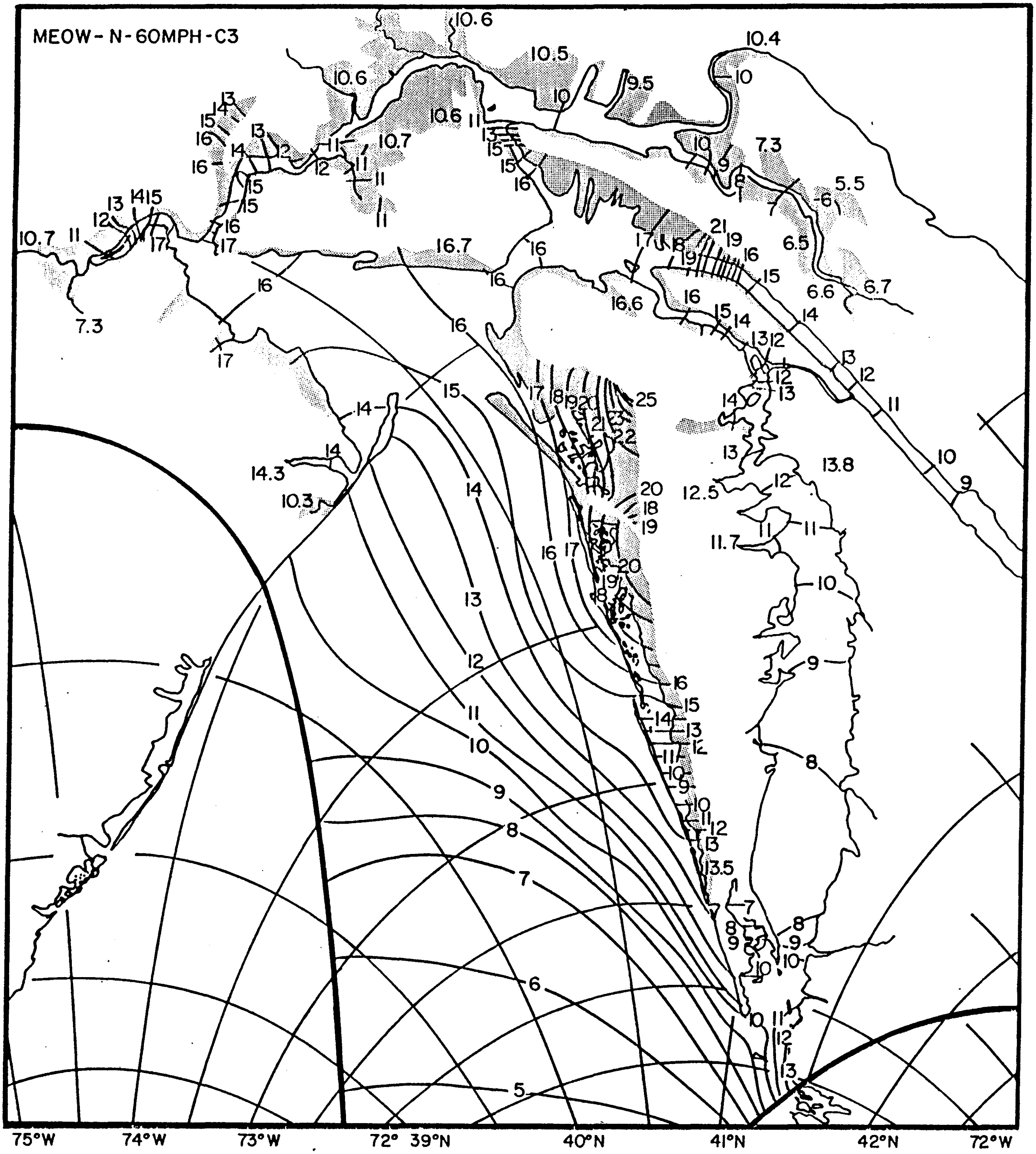
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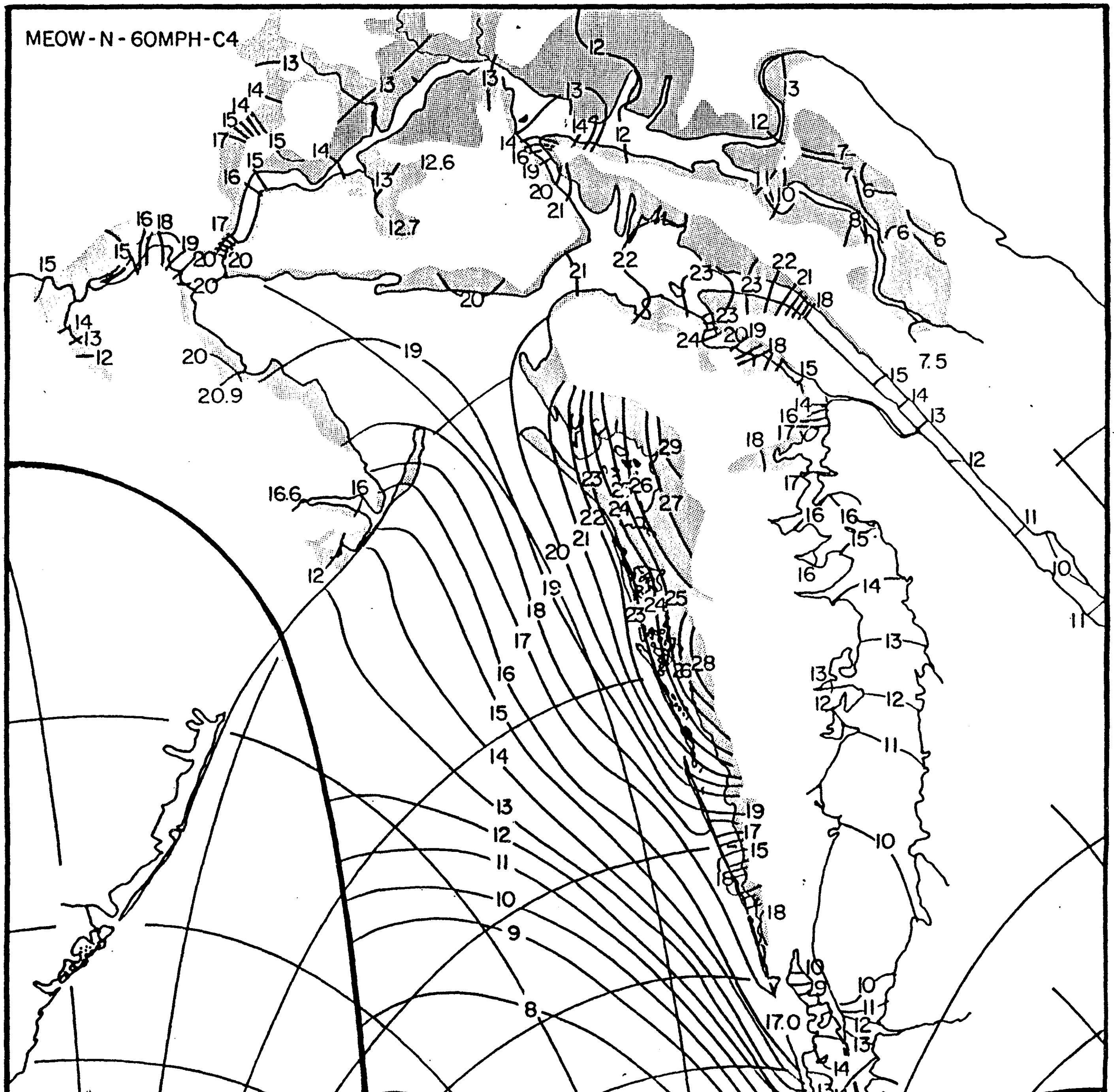
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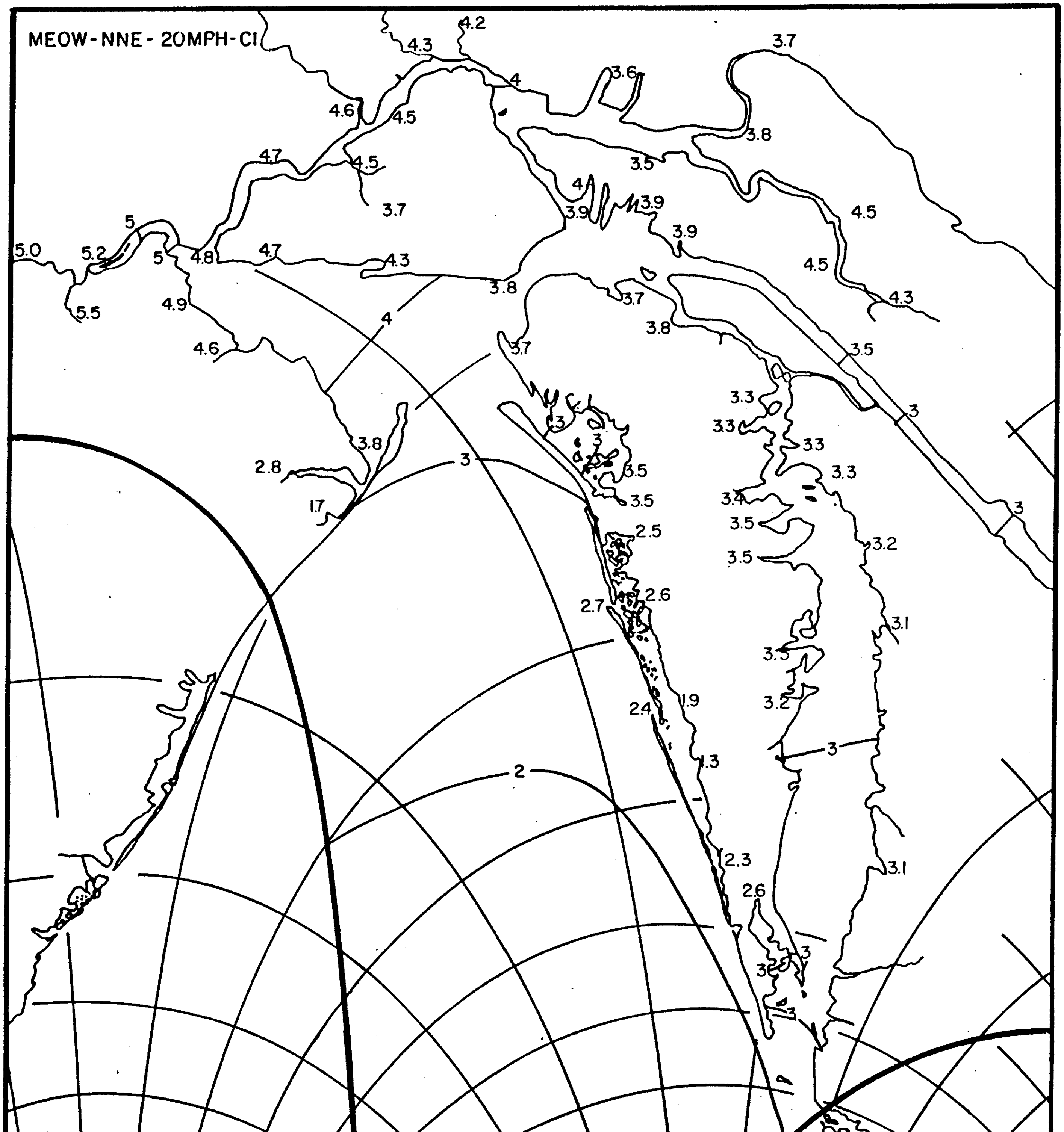
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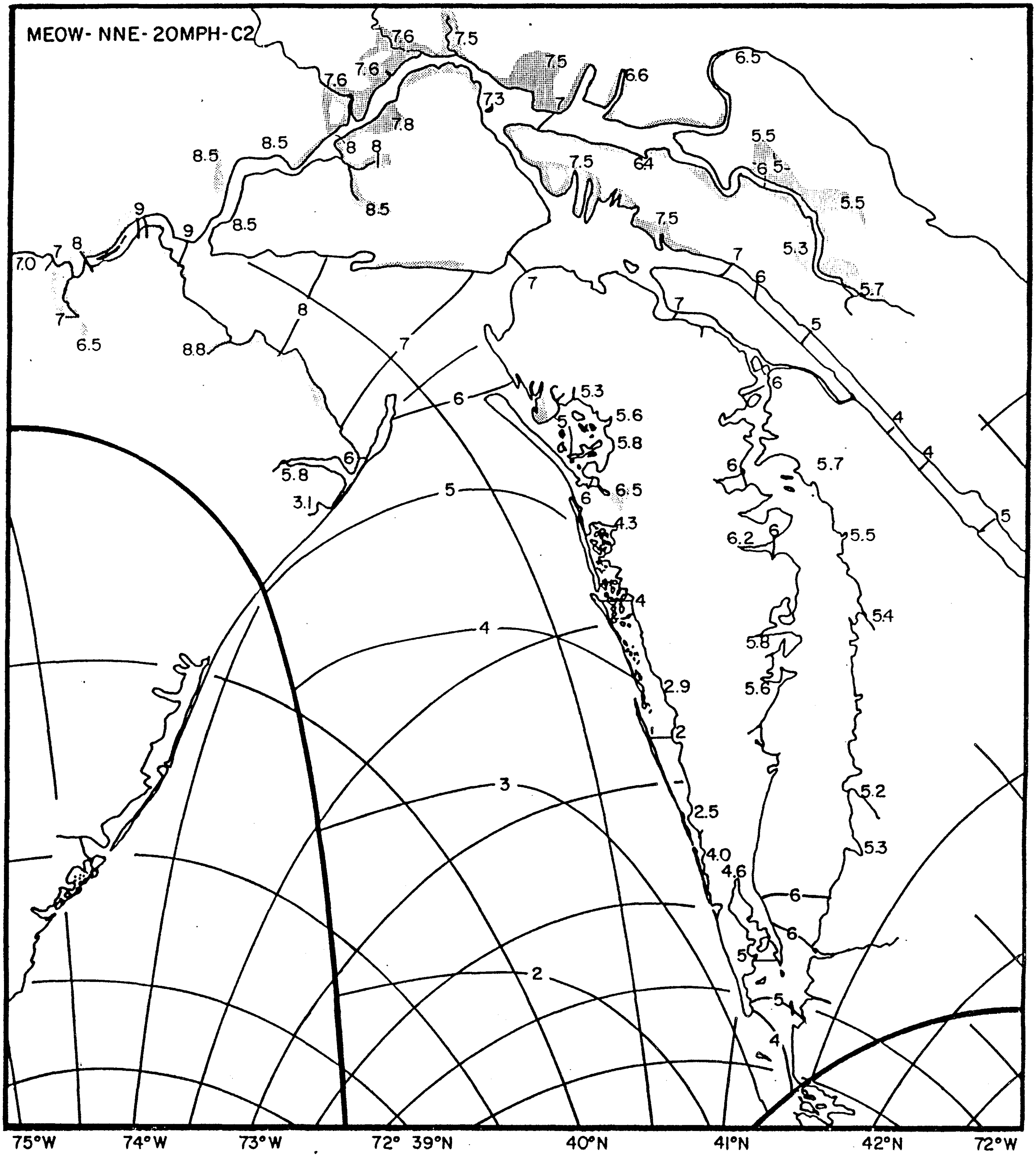
72°W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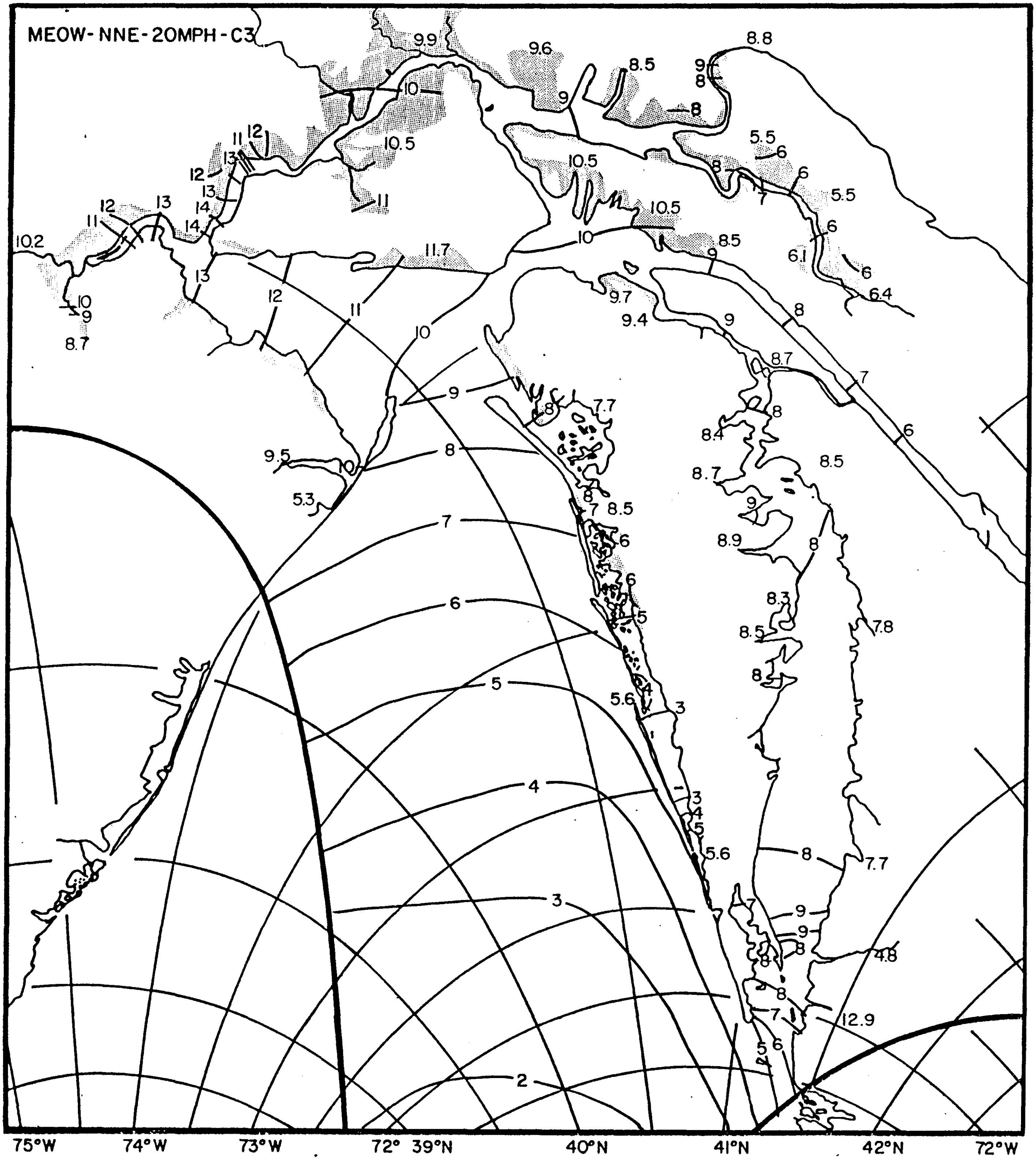

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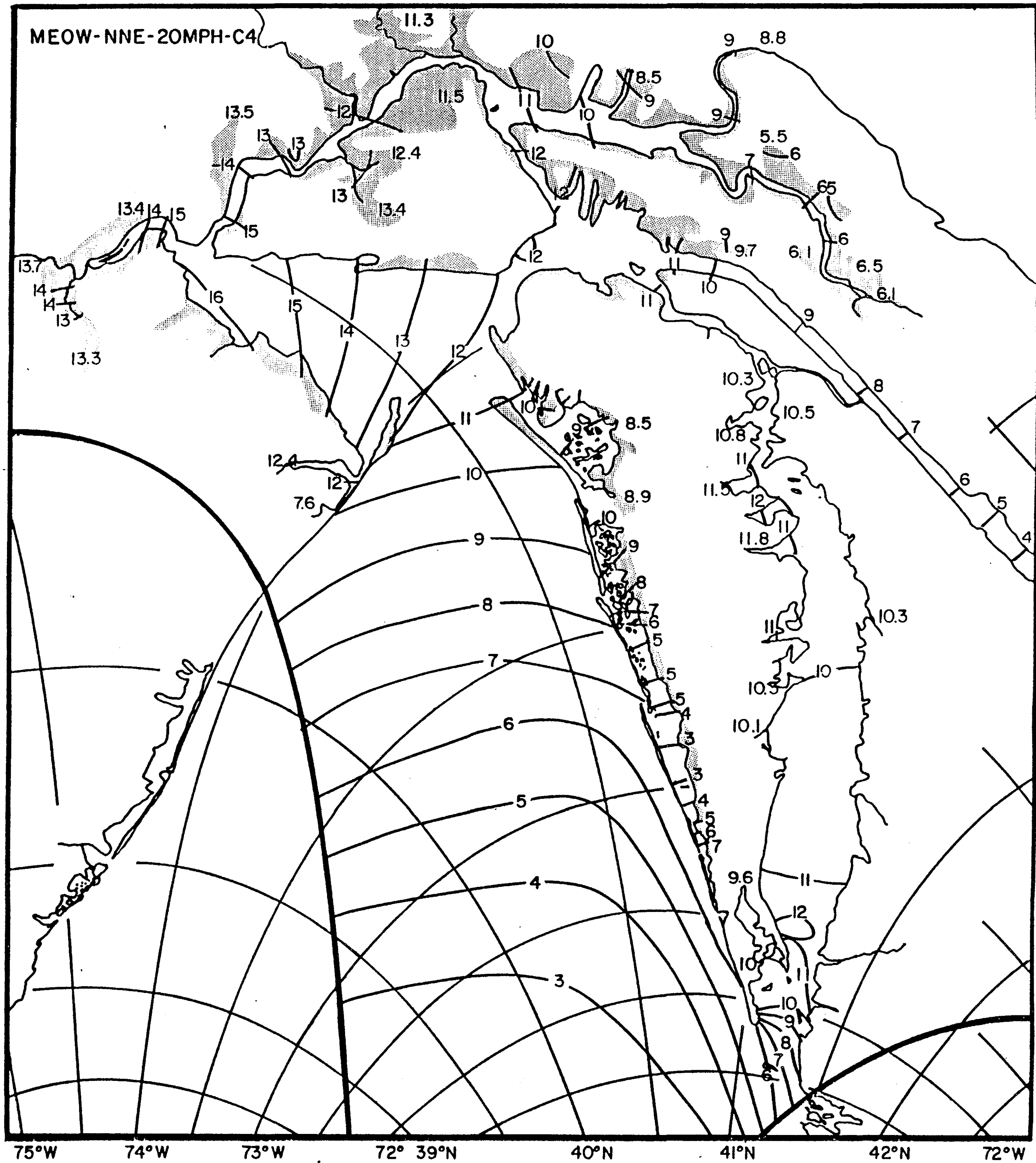
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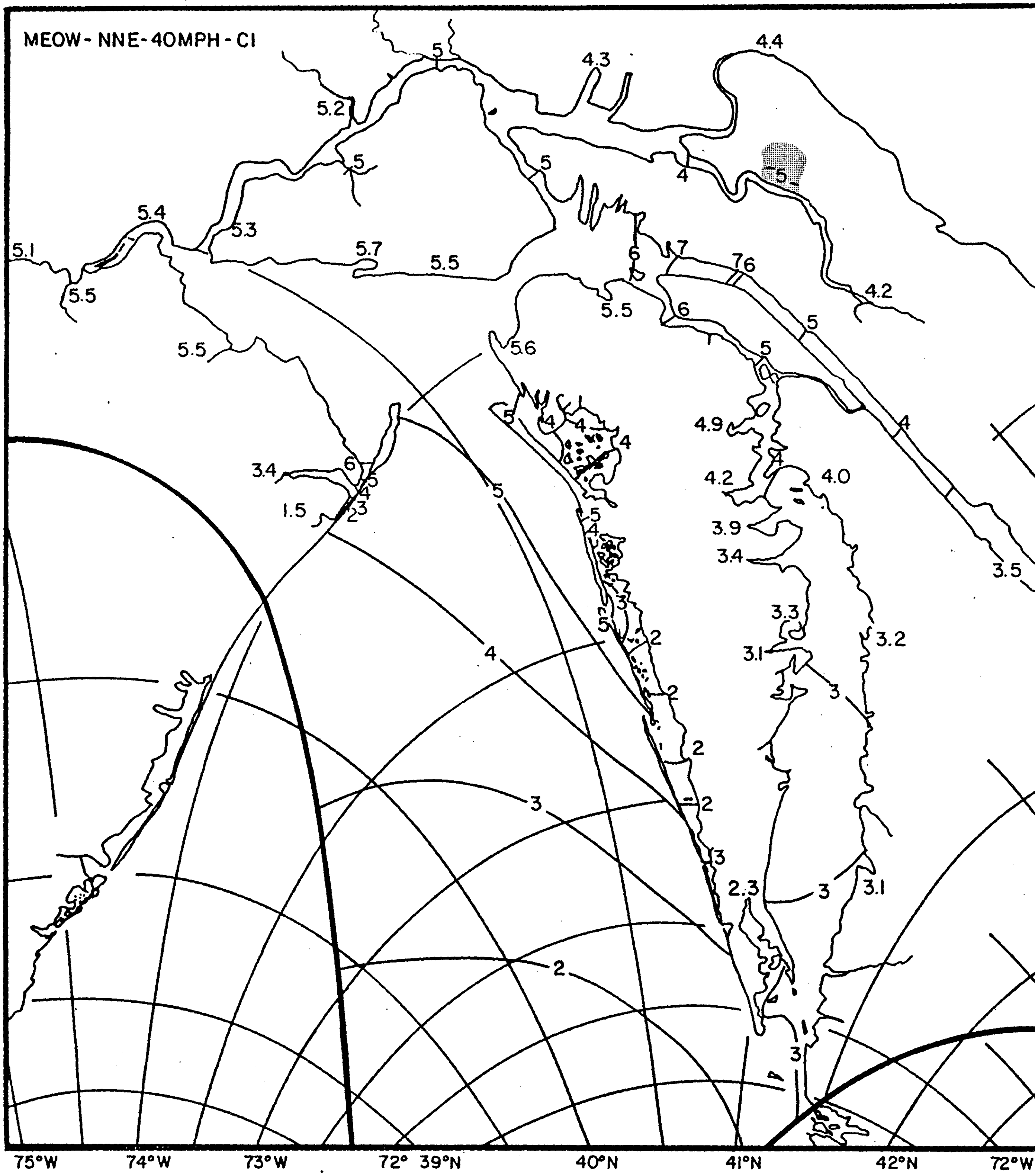
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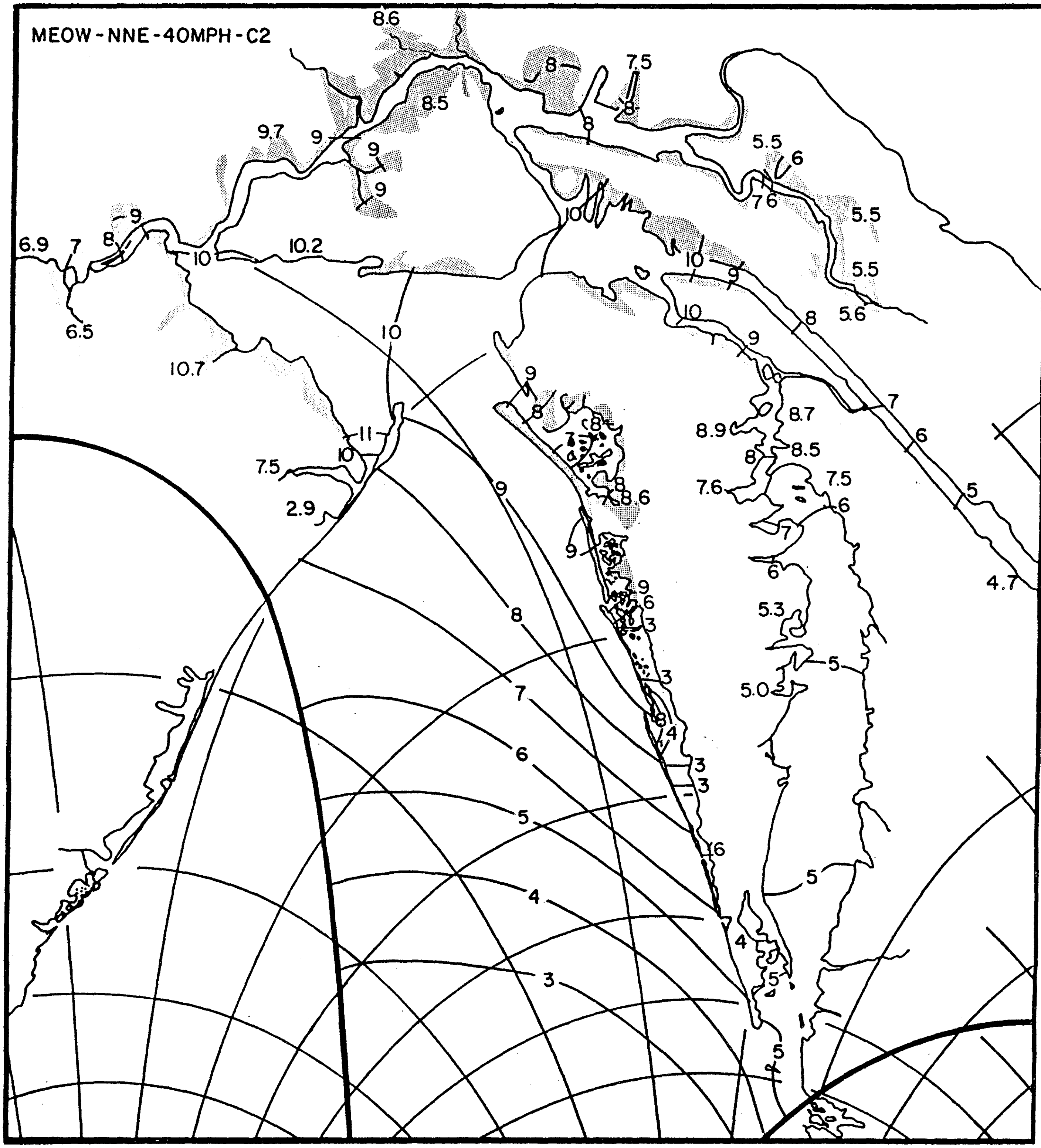
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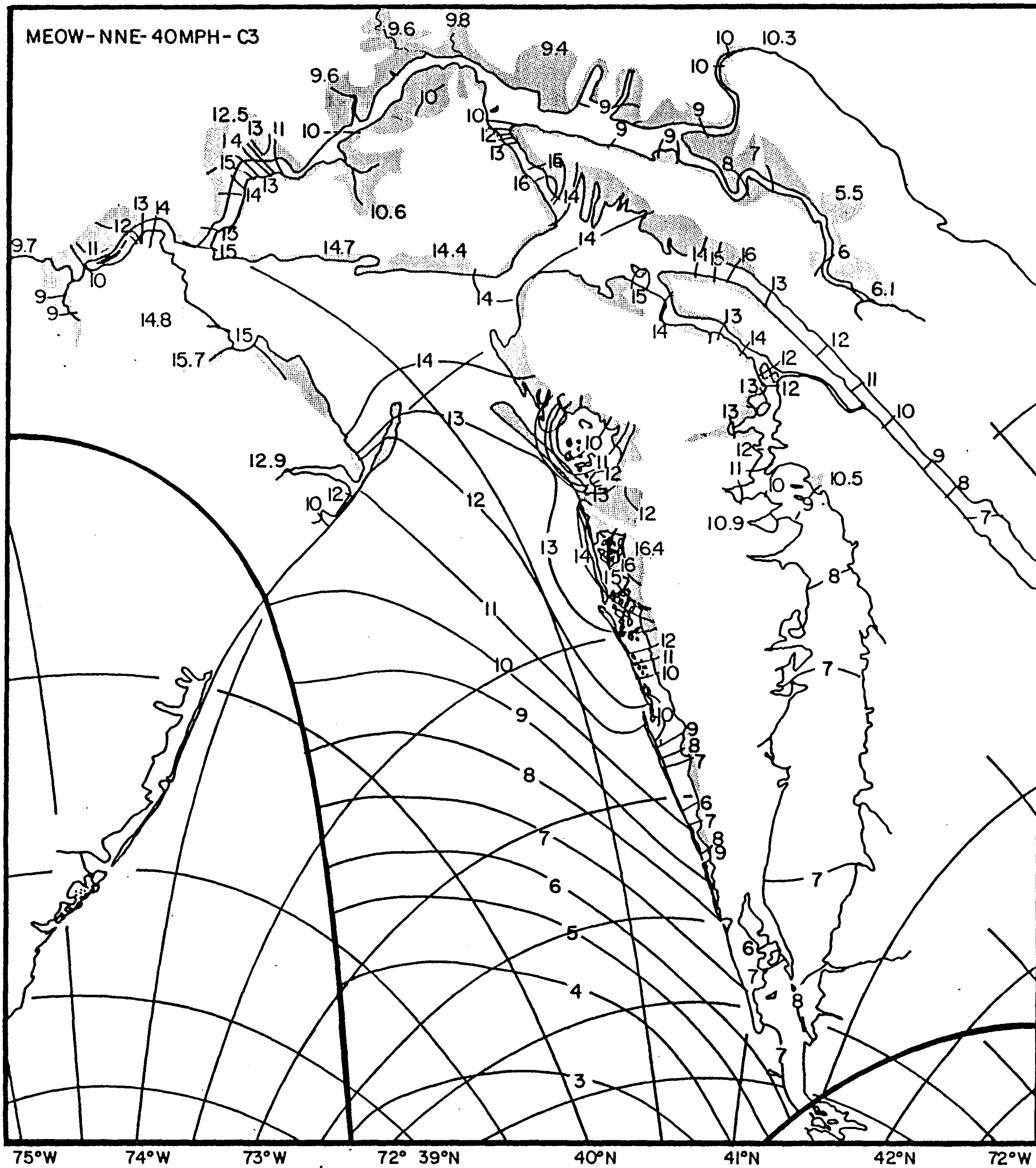

MEOW-NNE-40MPH-C3
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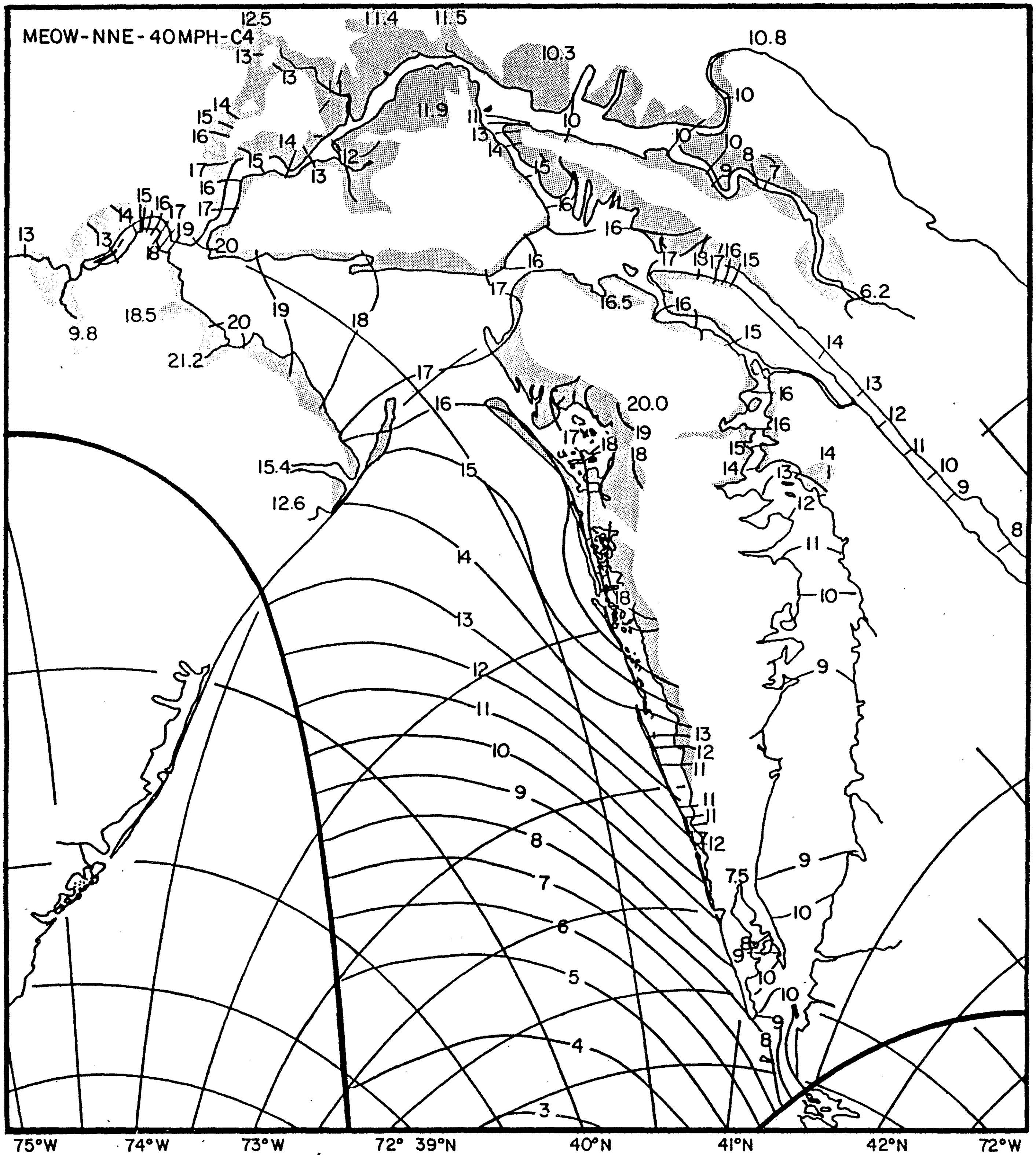
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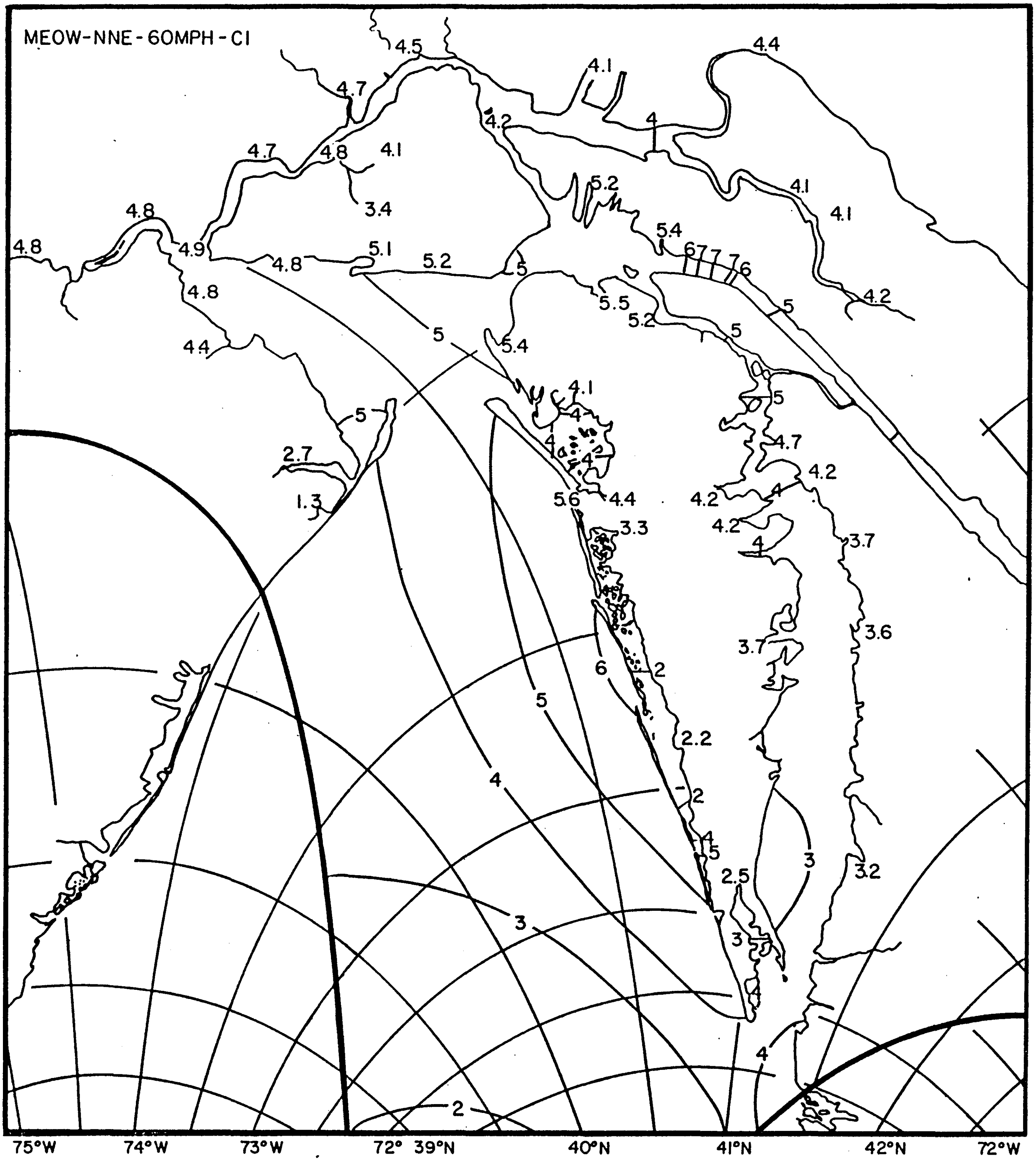
72°W



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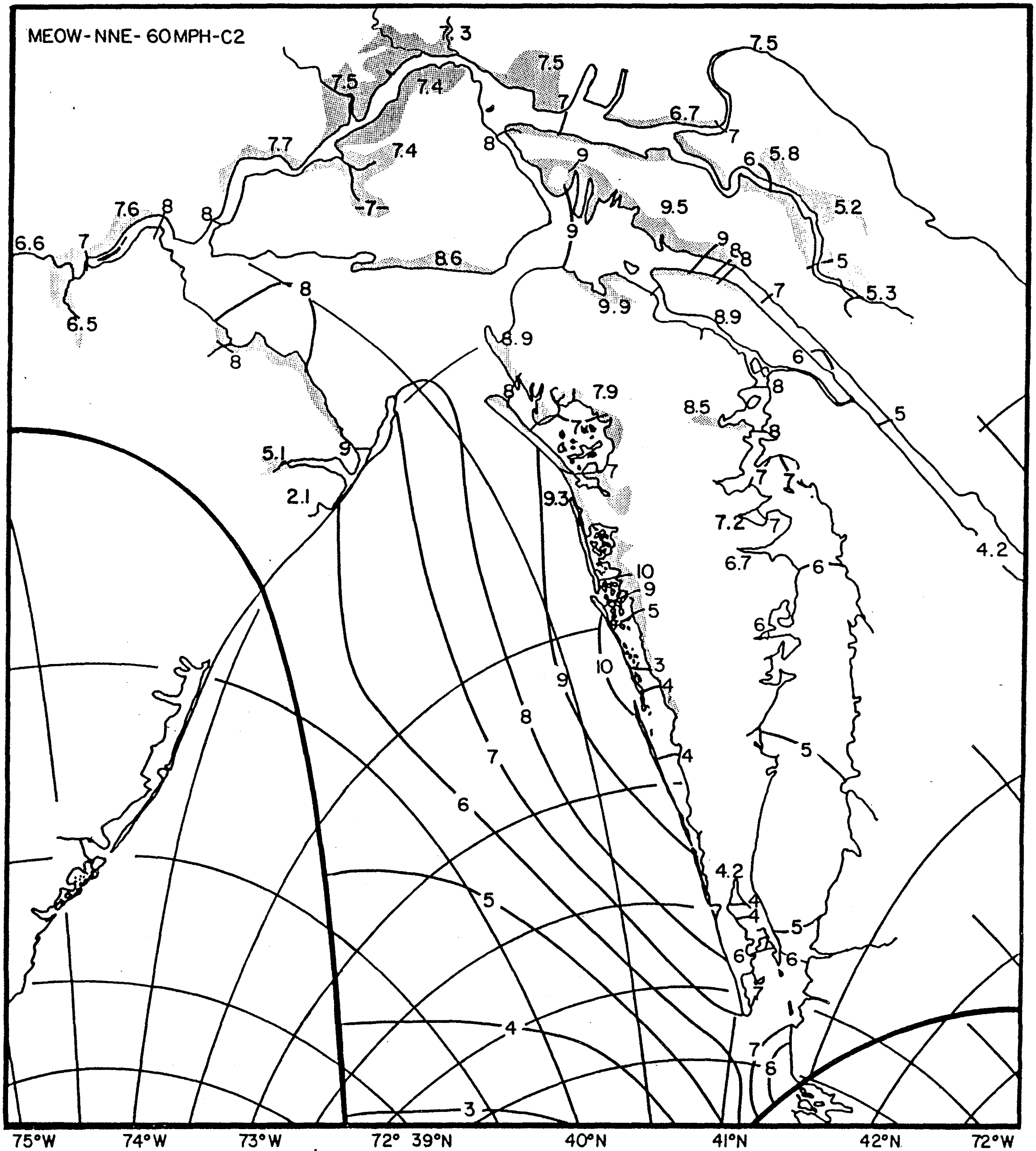
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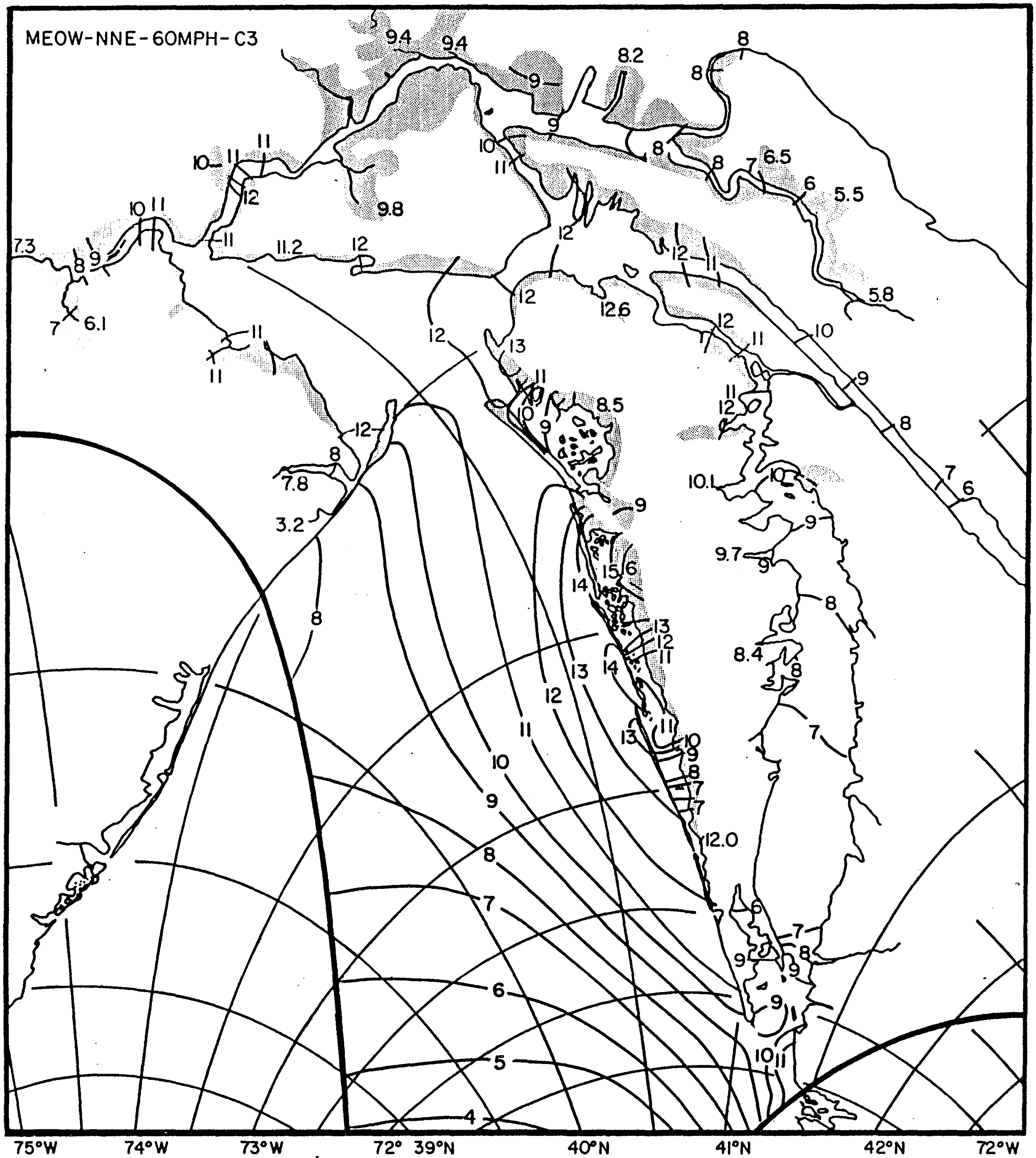
MEOW-NNE-60MPH-C3
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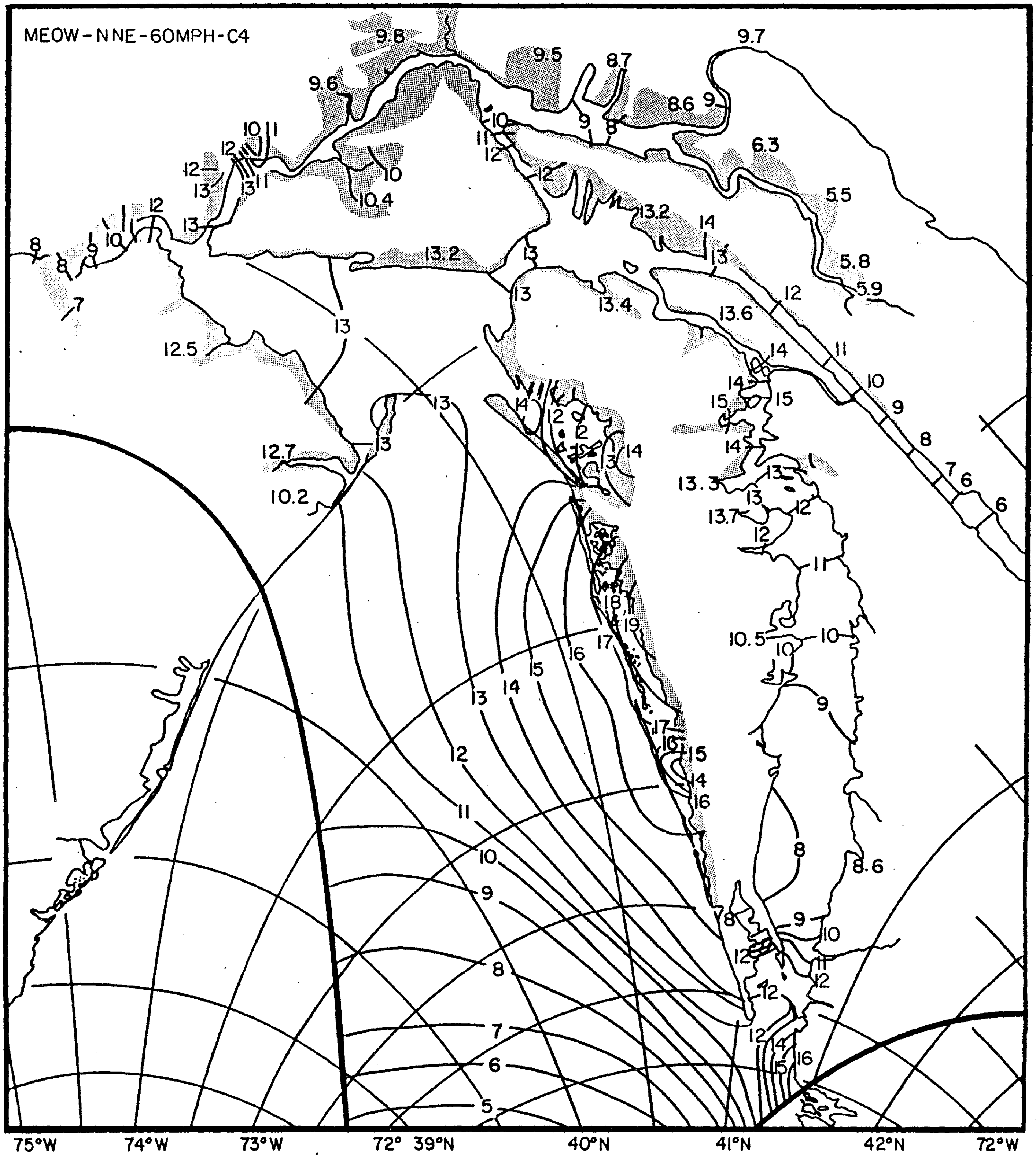
72°W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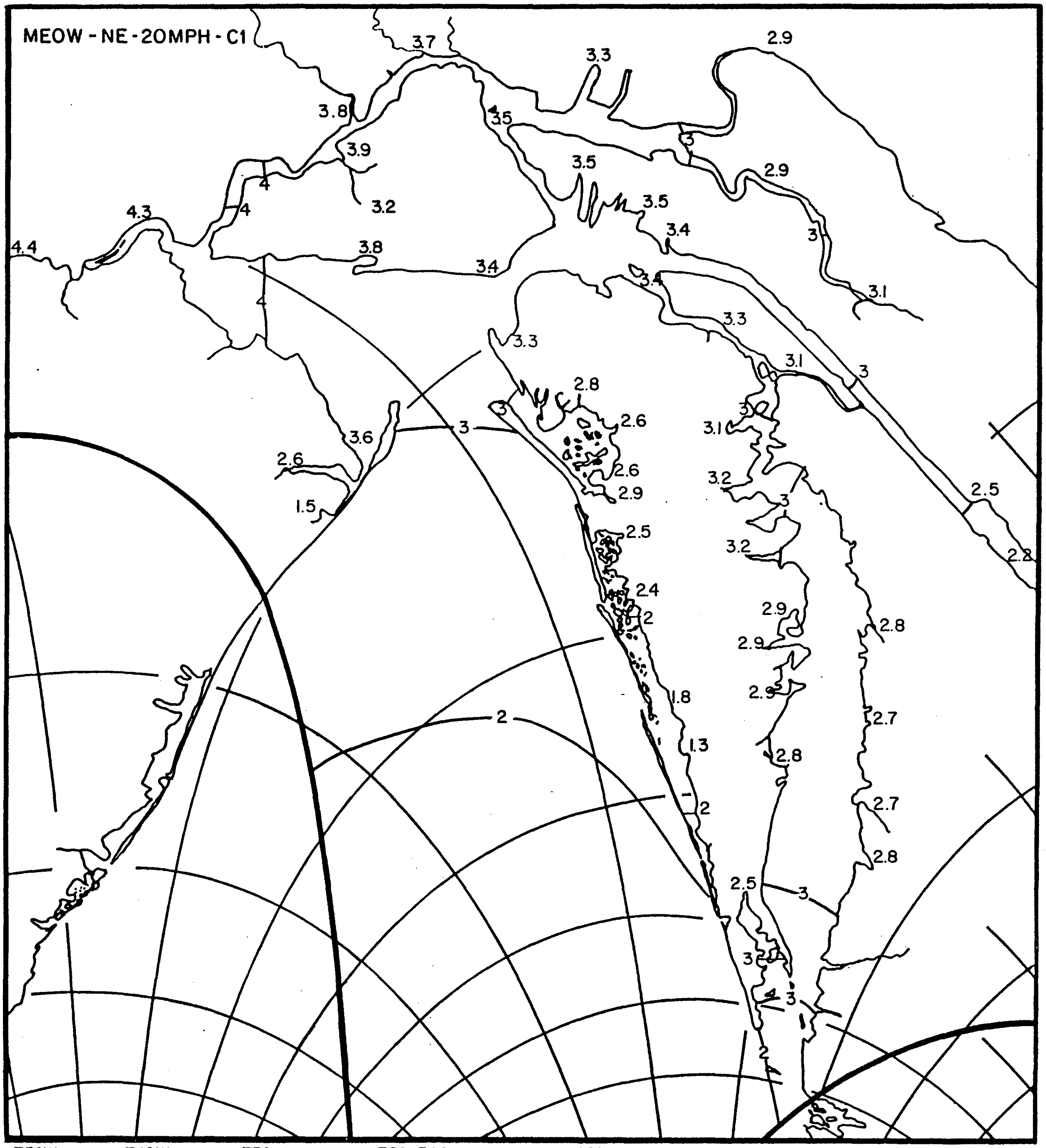
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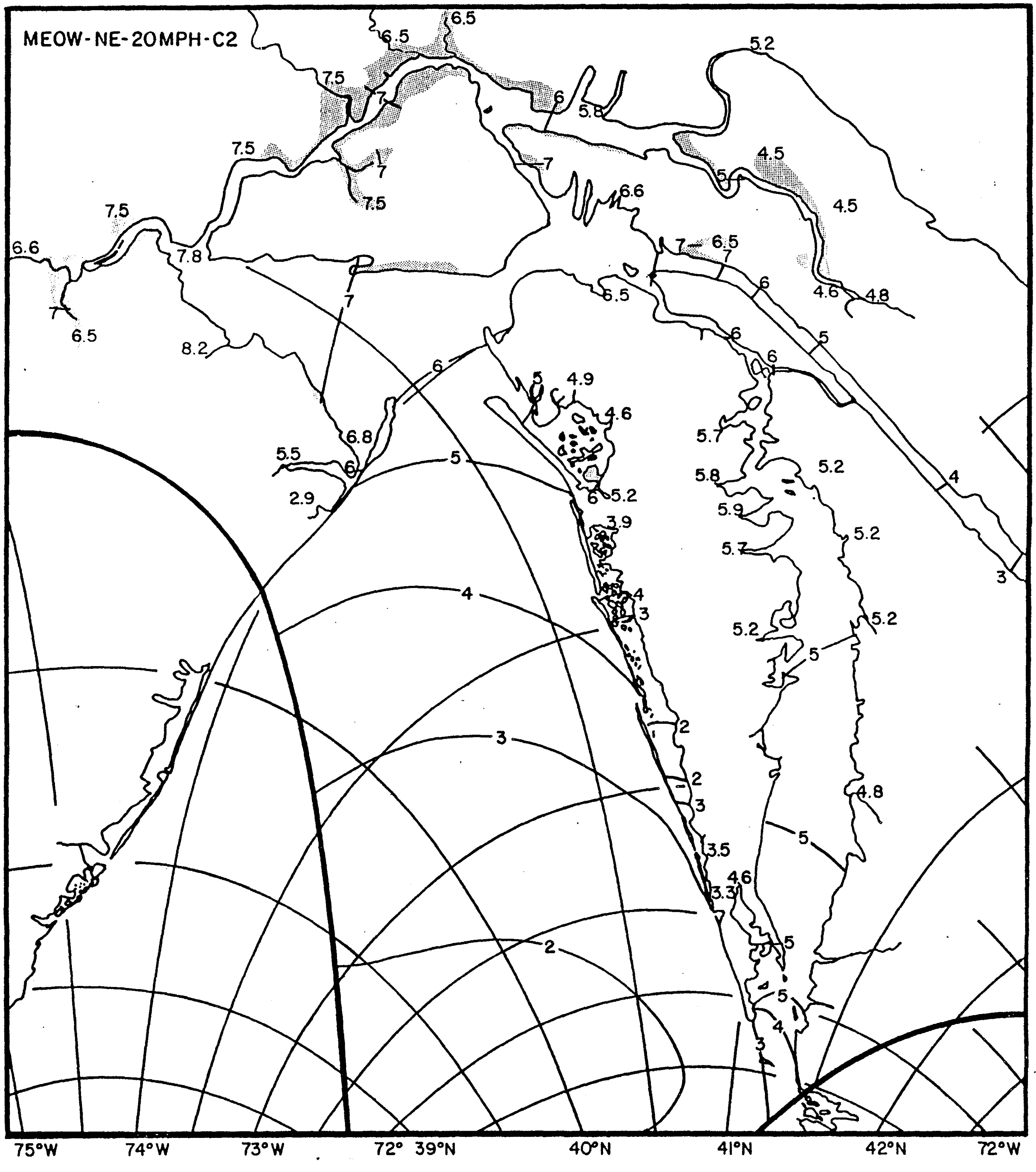
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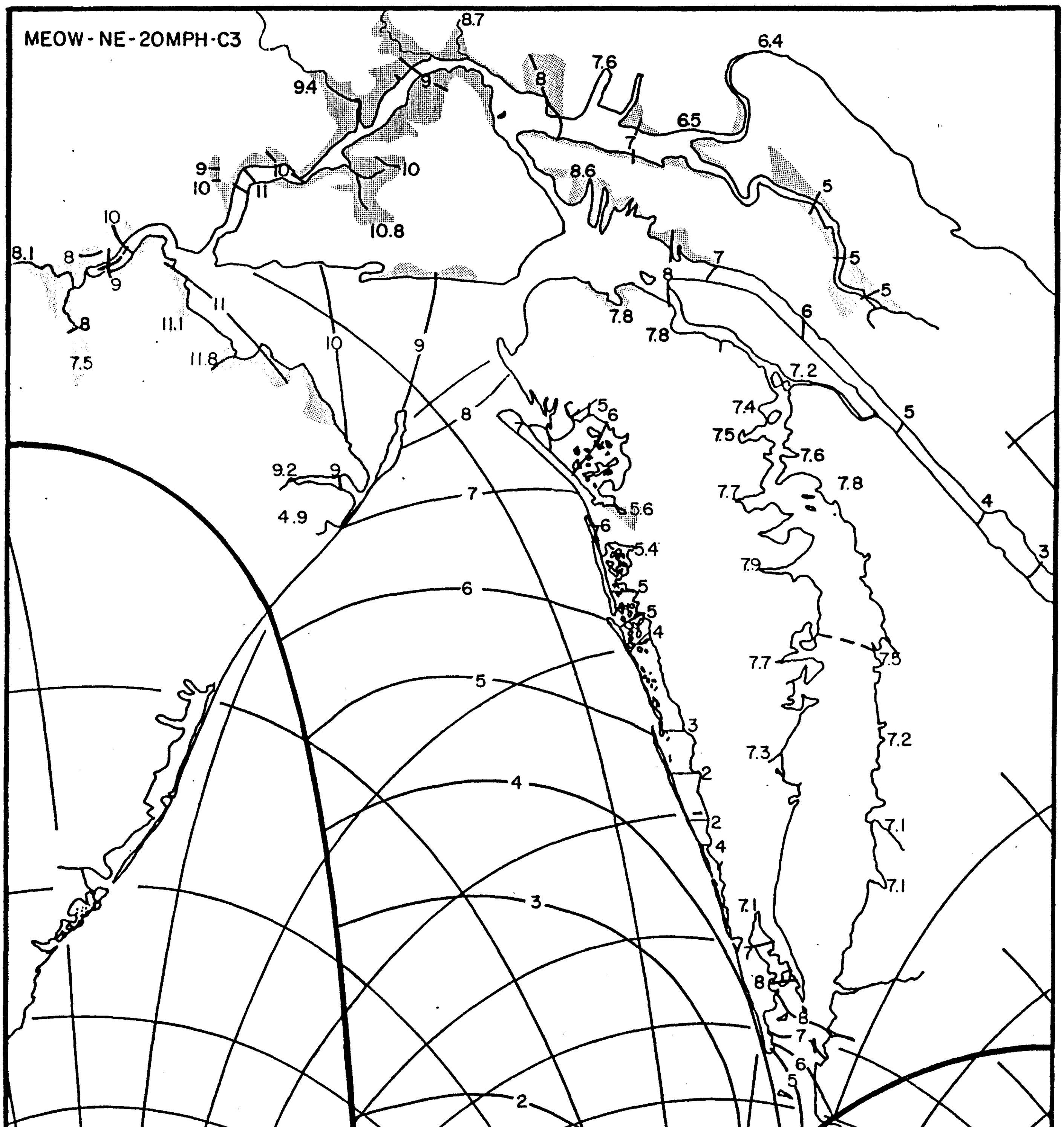
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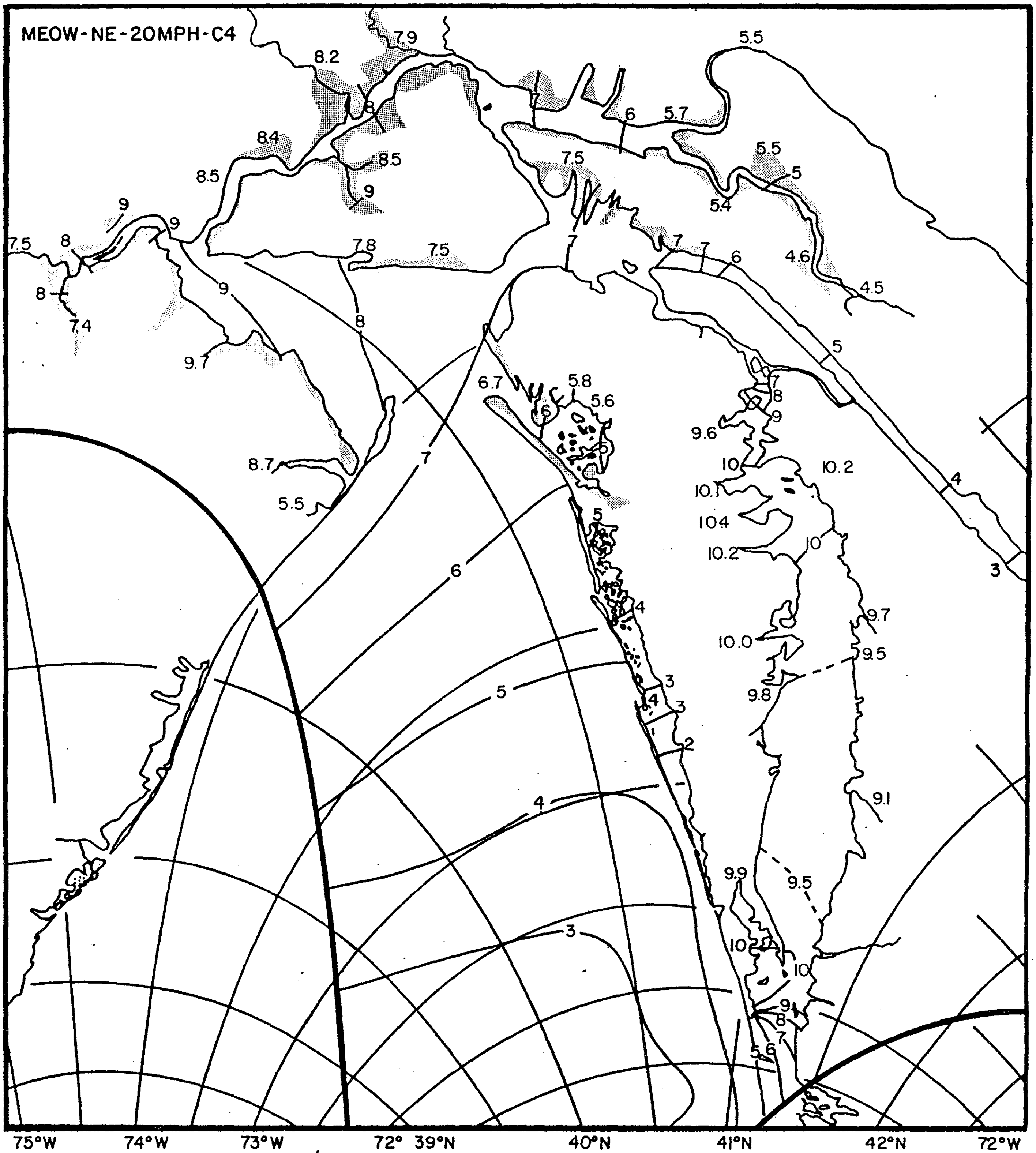
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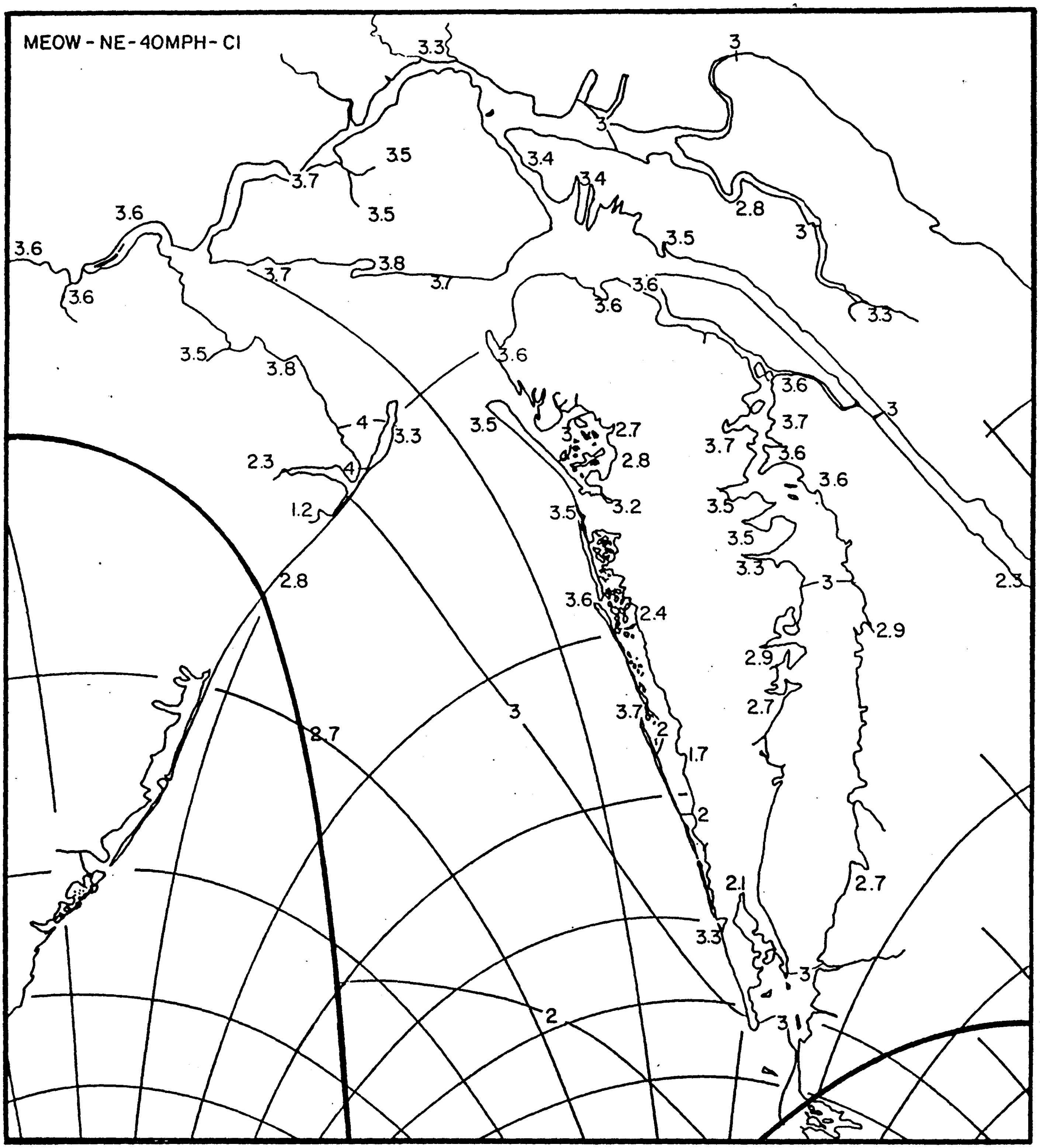

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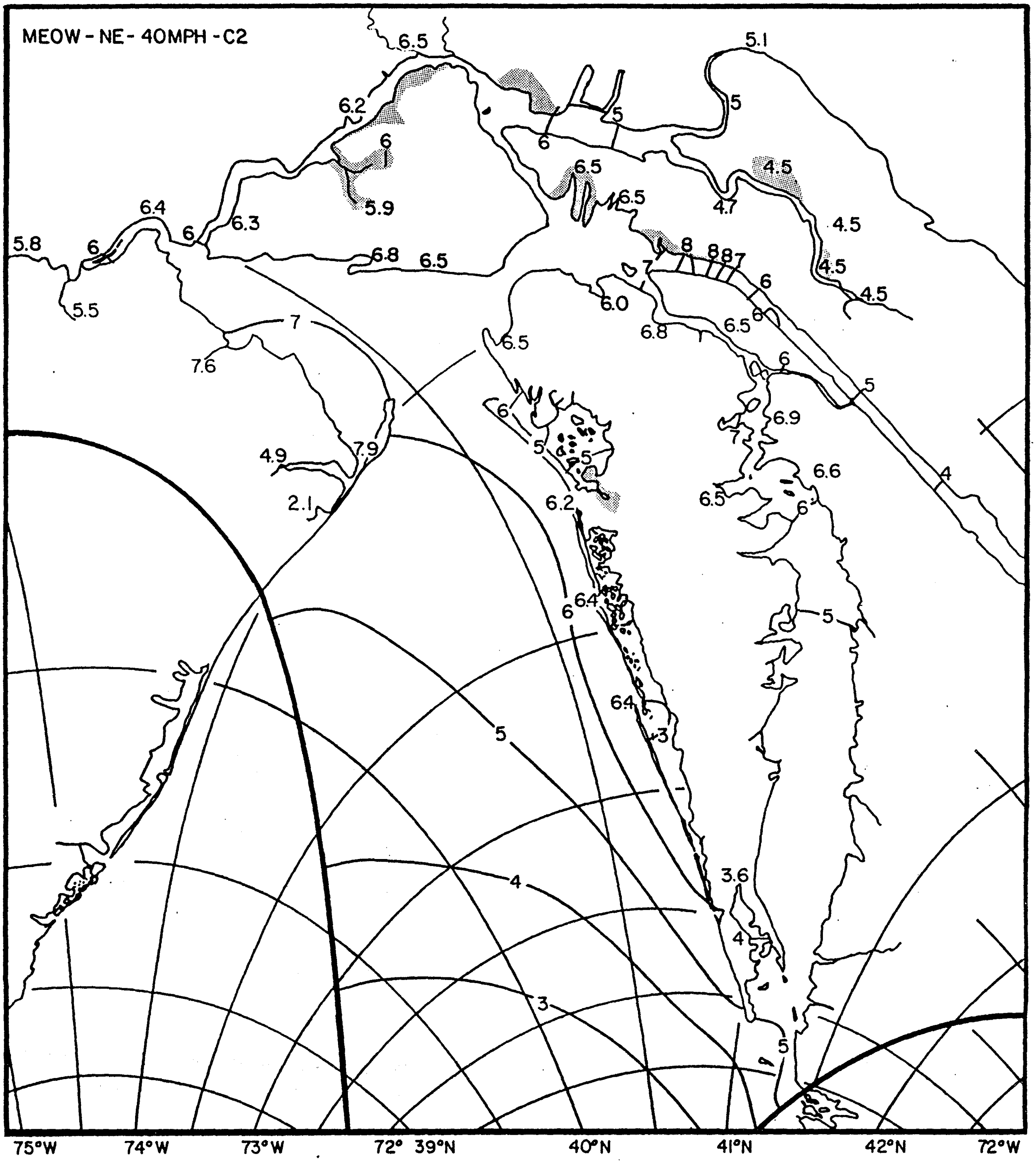
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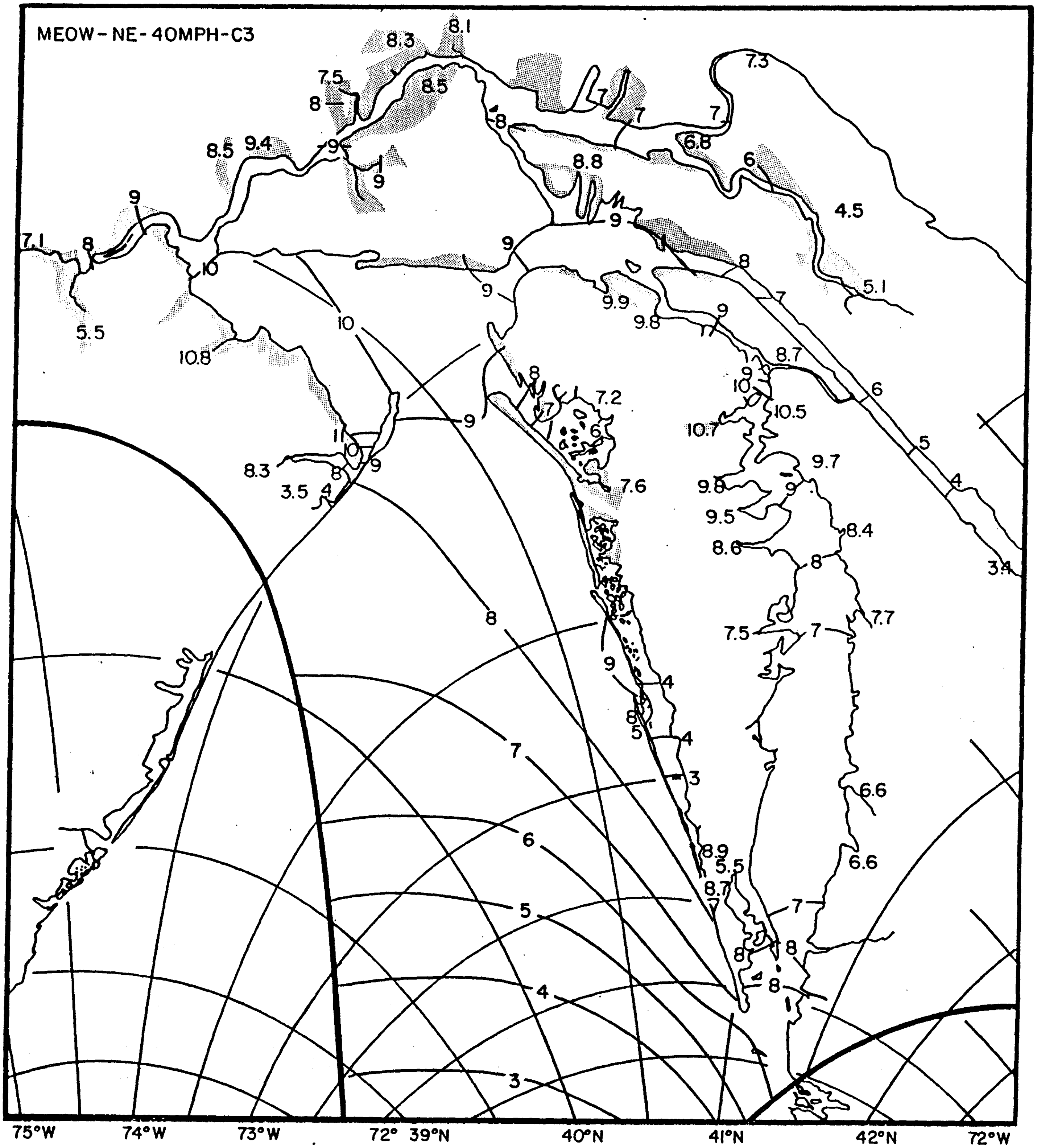
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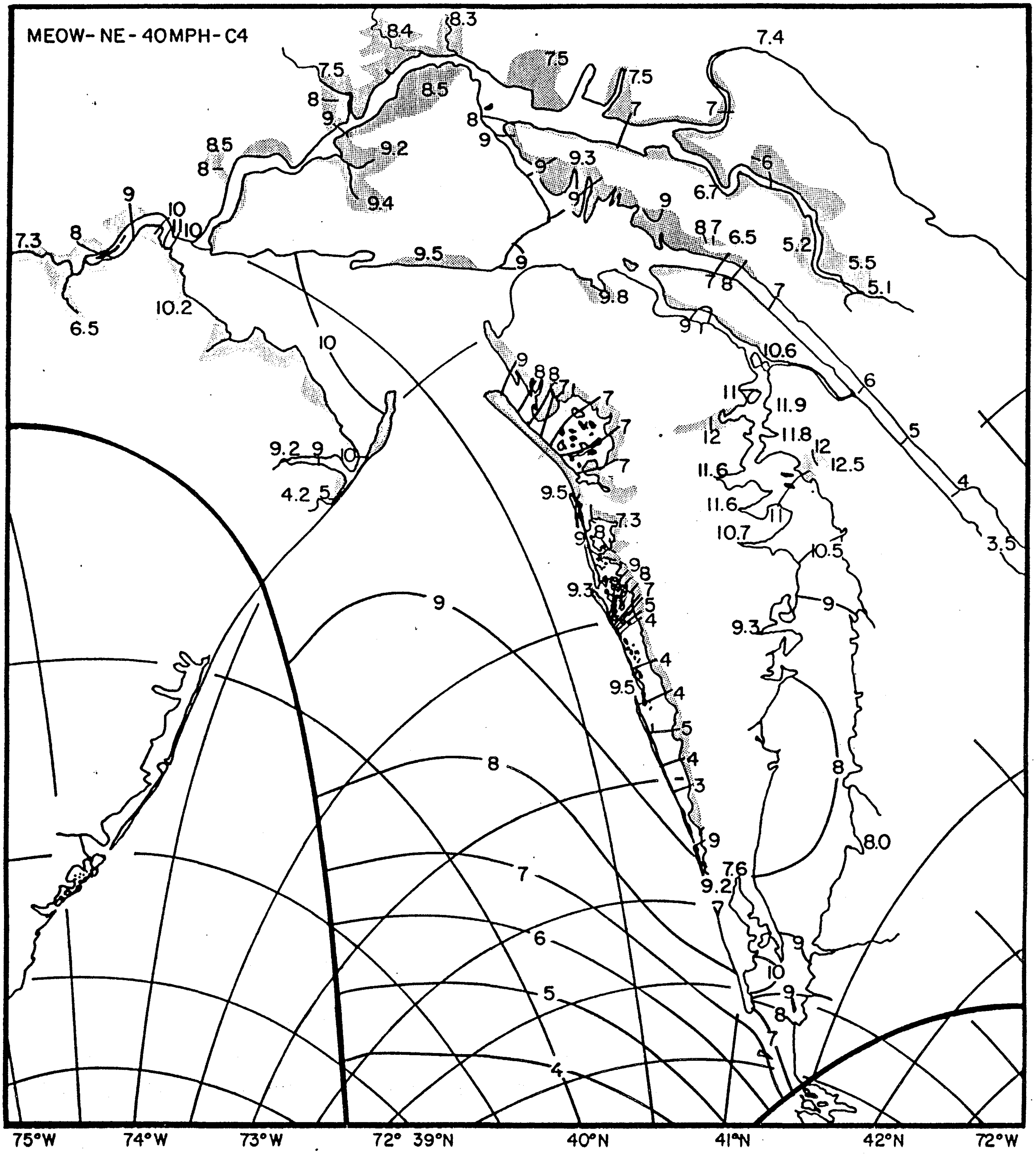
MEOW-NE-40MPH-C4
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9. FIGURE CAPTIONS

Figure 1. Grid mesh for SLOSH model for Long Island Sound basin.

Figure 2. Tracks of hurricanes (1886-1986) passing within 100 miles of Coney Island, New York: northwestbound and northbound storms only.

Figure 3. Same as Figure 2, but only storms heading north-northeastward.

Figure 4. Same as Figure 2, but only northeastward moving storms.

Figure 5. Tracks of the hypothetical hurricanes that were used for calculating the maximum envelope of water (MEOW). Hurricane symbol is at point of landfall of eye of storm, and dots are eye positions at 6 hour increments (20 mph). Tracks are identified by the distance in miles of their landfall point to the left side (LS) or right side (RS) of Coney Island, New York. Storms heading west-northwestward (WNW) only.

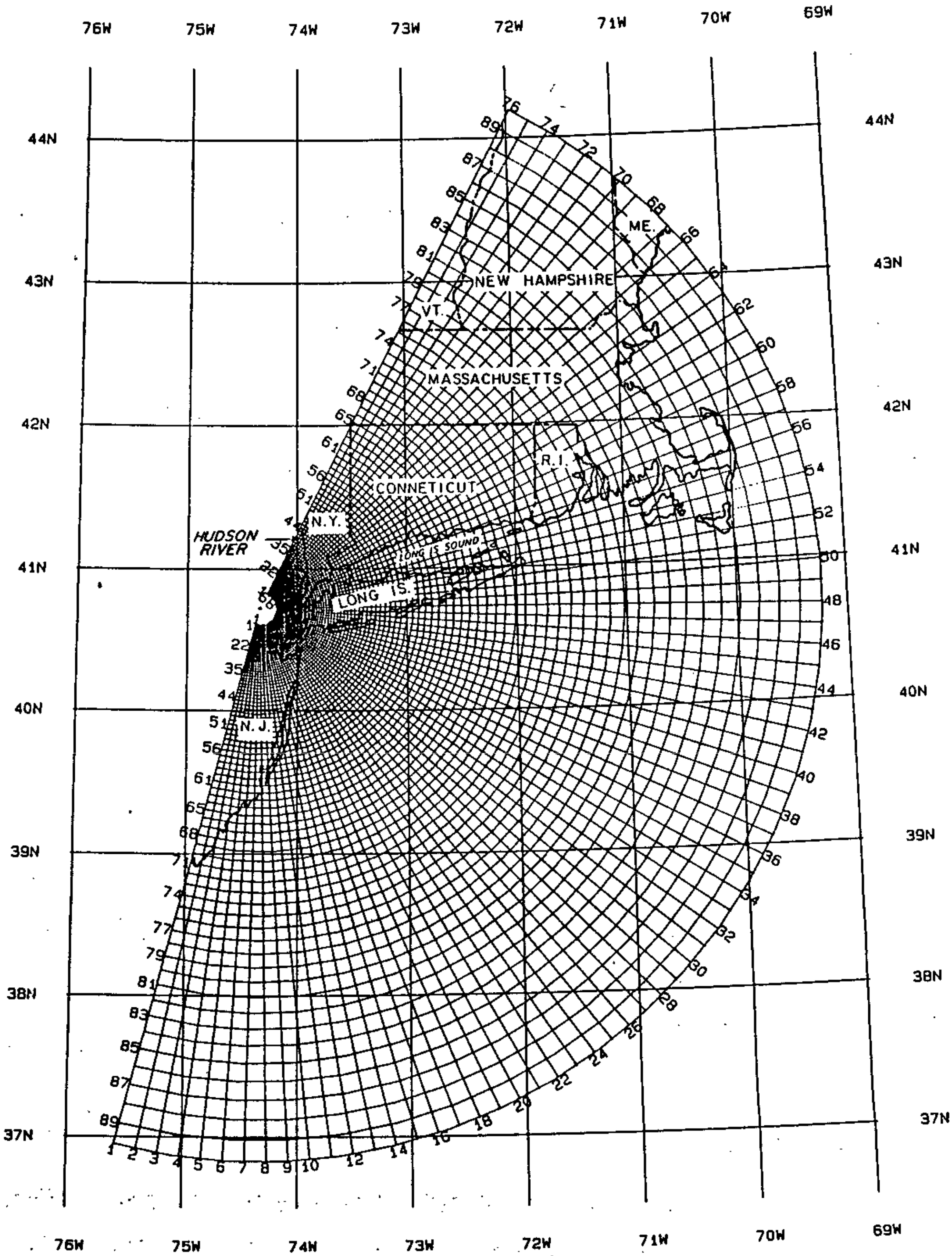
Figure 6. Same as Figure 5, but only for northwestbound (NW) storms.

Figure 7. Same as Figure 5, but only for north-northwestbound (NNW) storms.

Figure 8. Same as Figure 5, except for northbound (N) storms only.

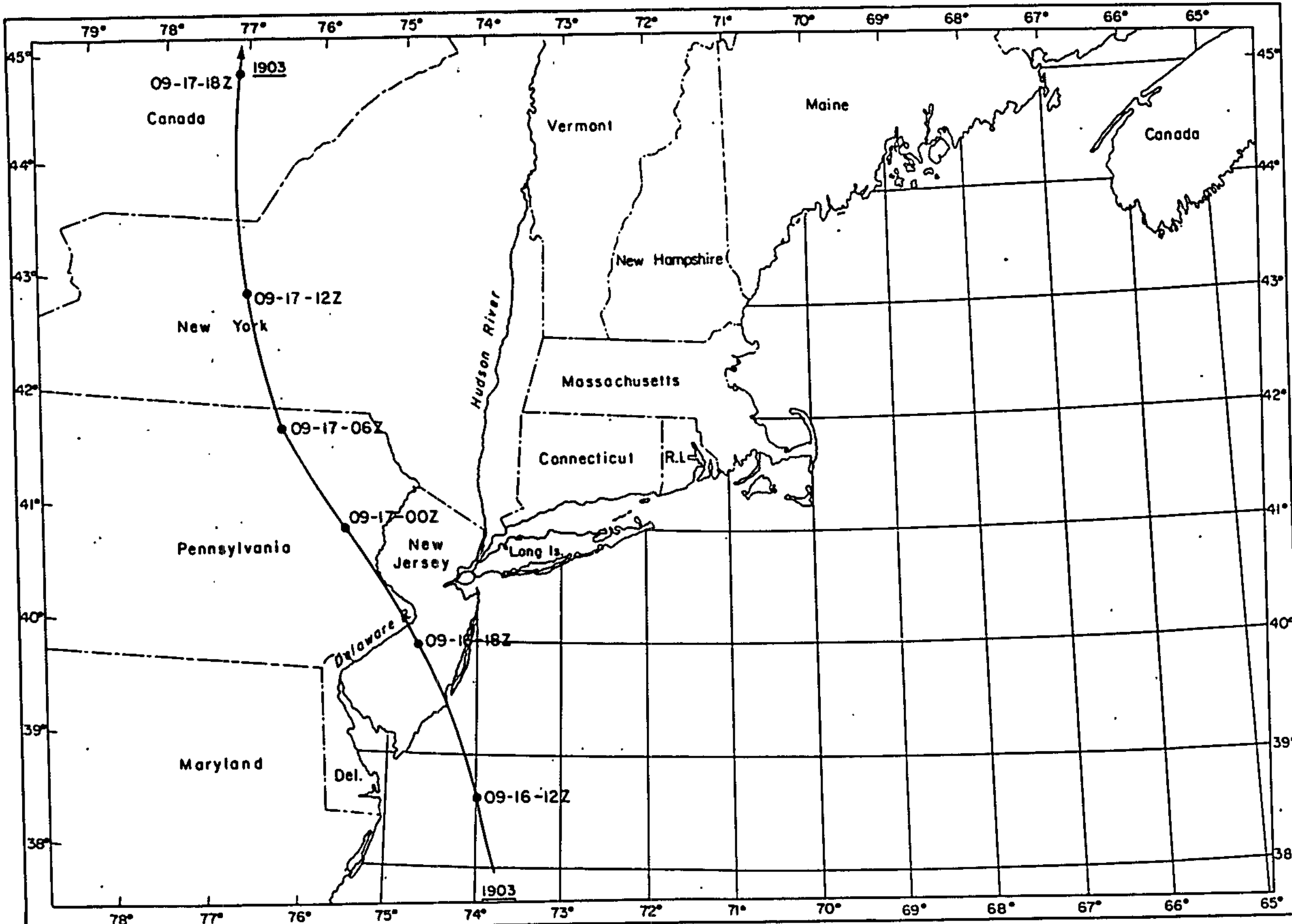
Figure 9. Same as Figure 5, except for north-northeastward (NNE) moving storms only.

Figure 10. Same as Figure 5, except for northeastbound (NE) storms only. "Landfall points" lie on a perpendicular through Coney Island.



TRANSVERSE MERCATOR PROJECTION
SCALE 1: 3,395,576
TRUE AT 73W15'

LONG ISLAND SOUND



1903
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09-17-12Z
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Hudson River
Massachusetts
09-17-06Z
Connecticut
R.I.
09-17-00Z
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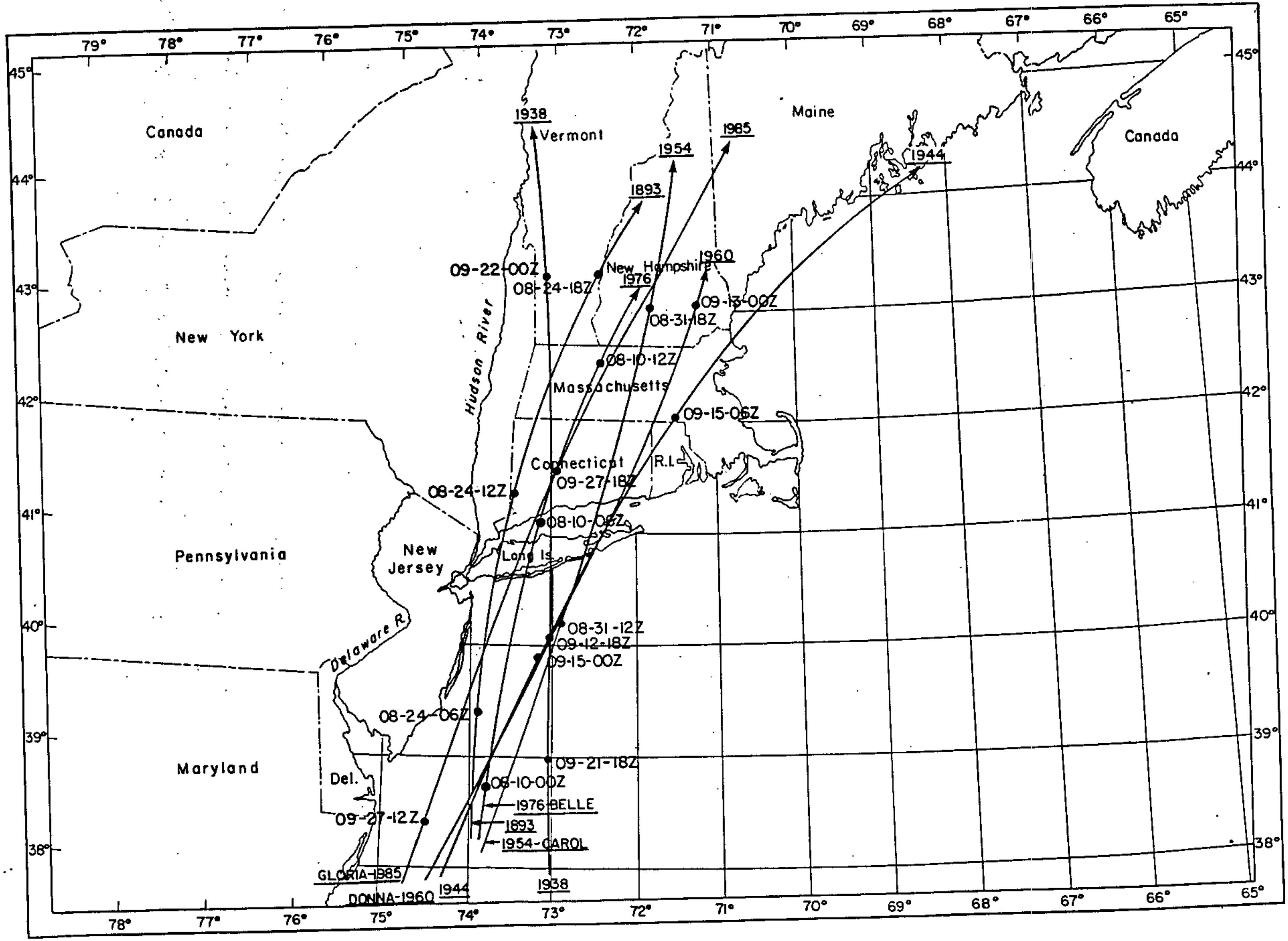
Delaware R.
09-16-18Z
Maryland
Del.
09-16-12Z
1903



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08-24-12Z
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08-10-06Z
08-31-12Z
09-12-18Z
09-15-00Z
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1954-CAROL
GLORIA-1985
DONNA-1960
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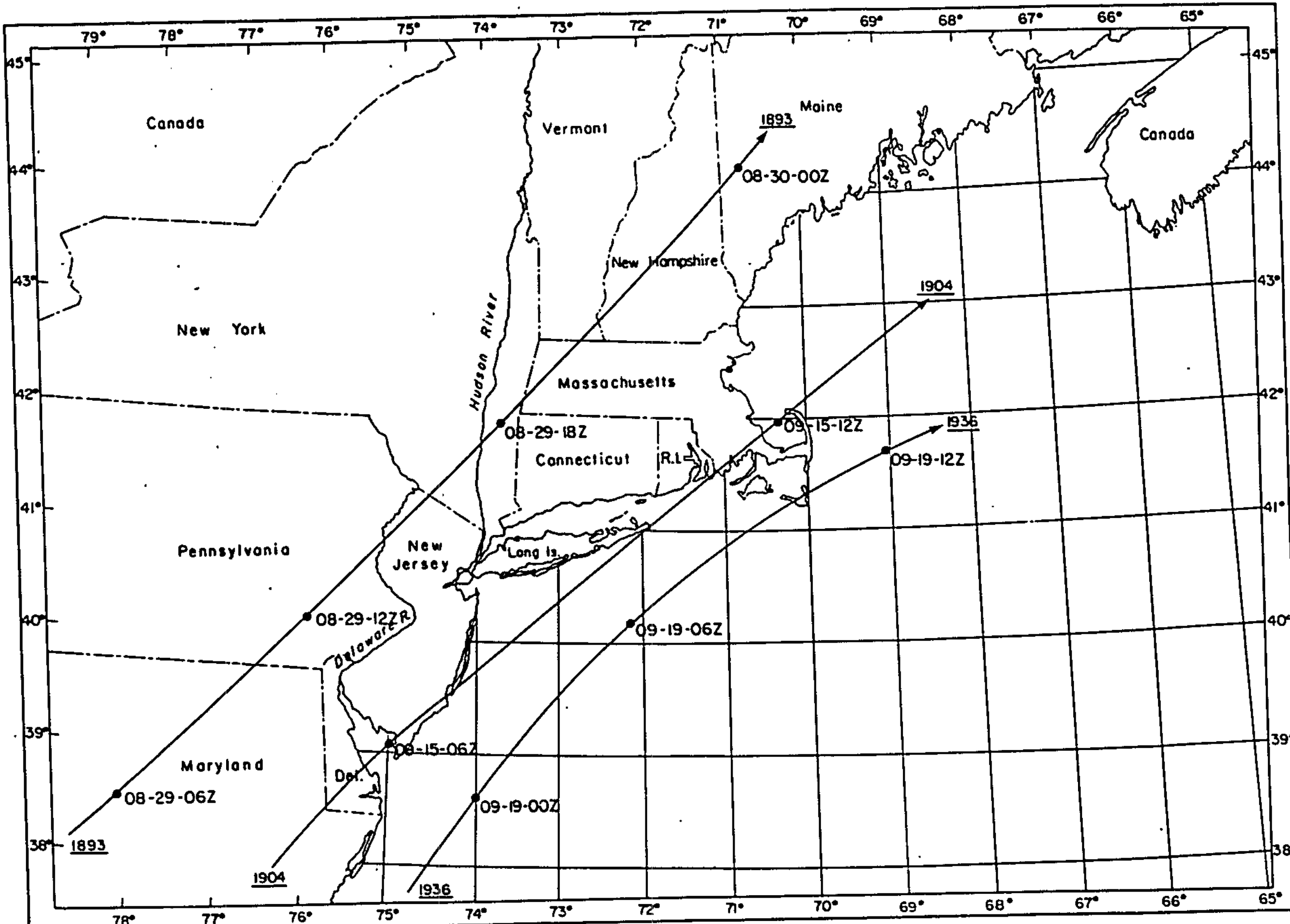
1938



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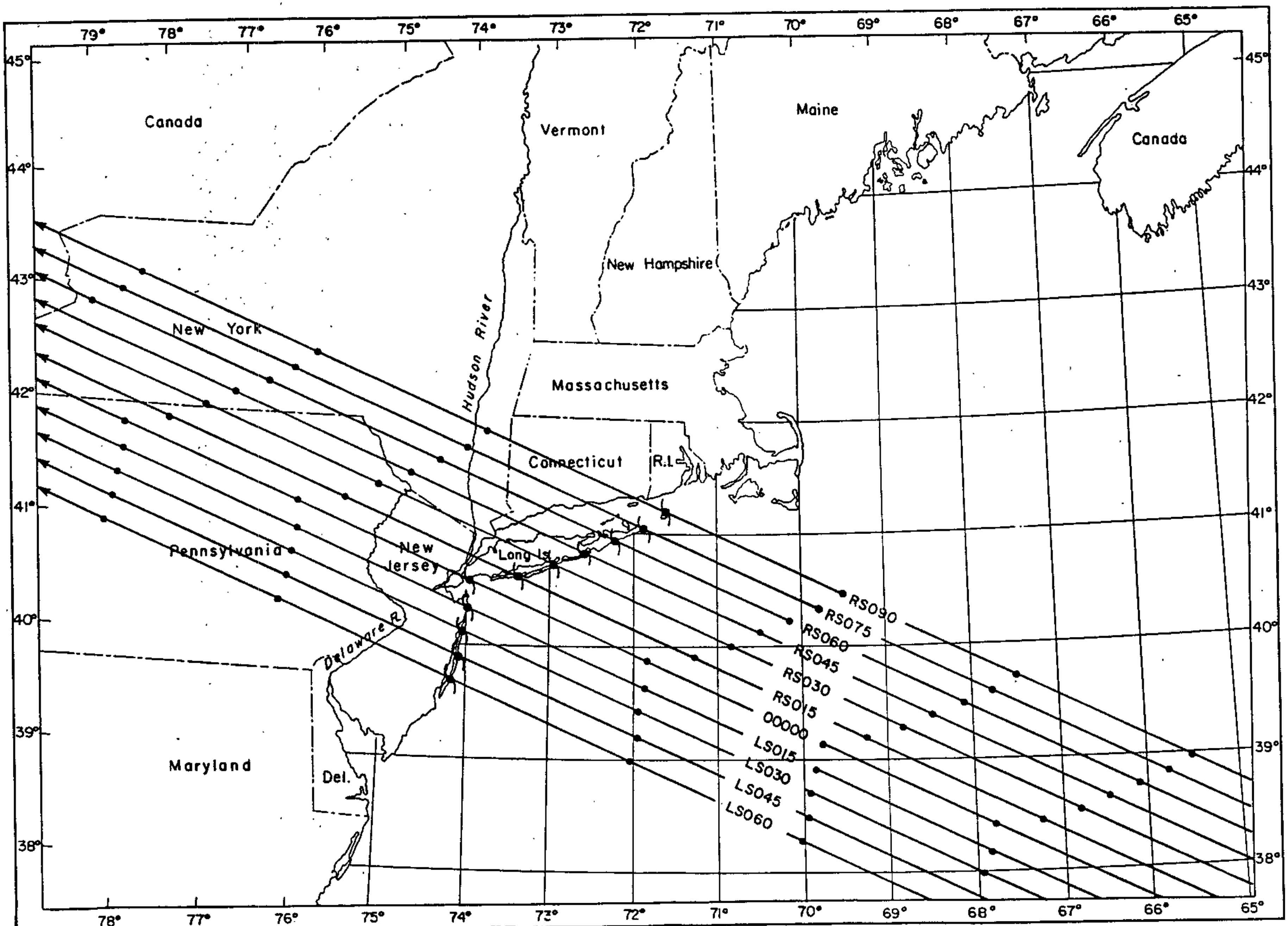

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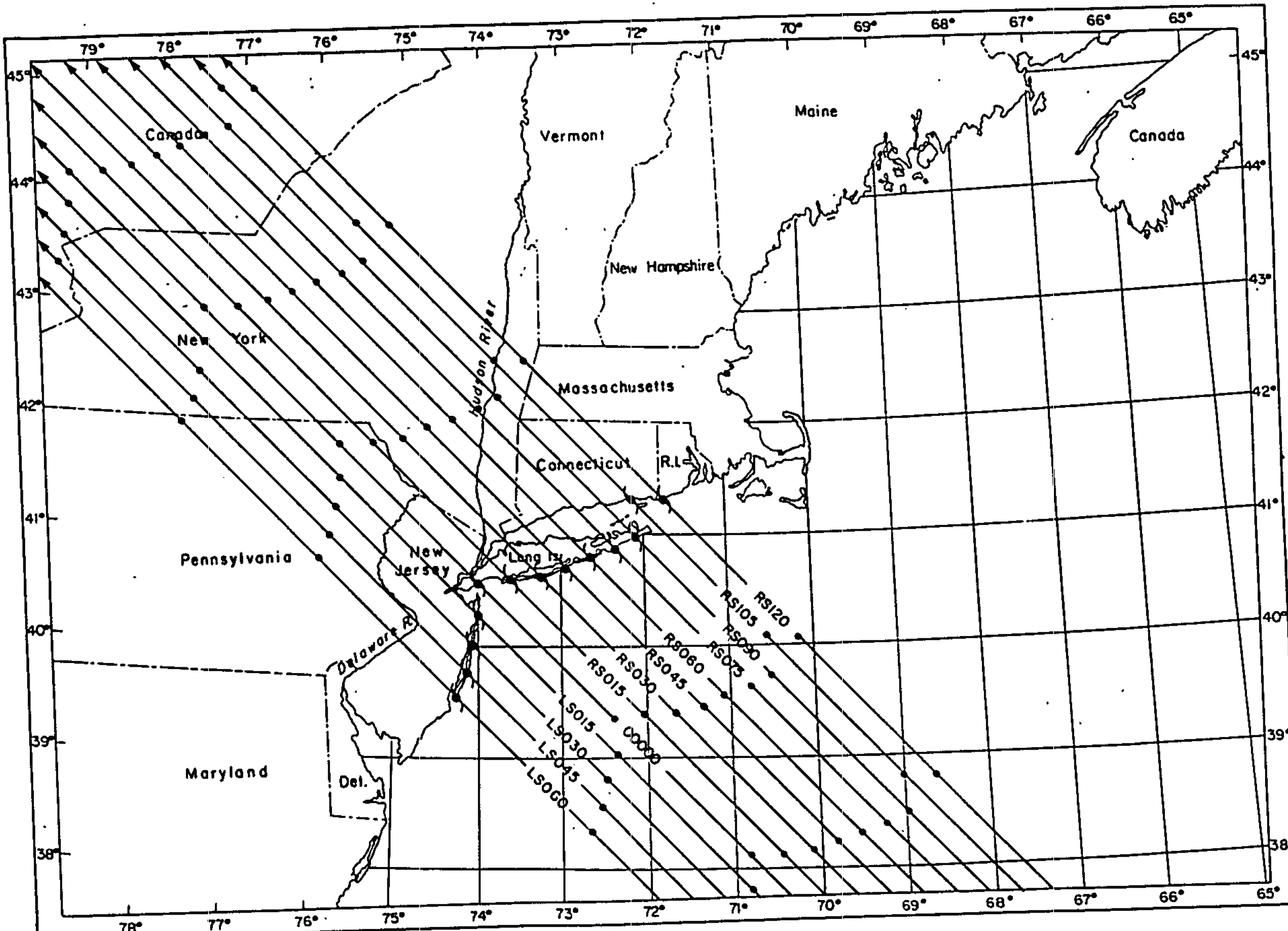

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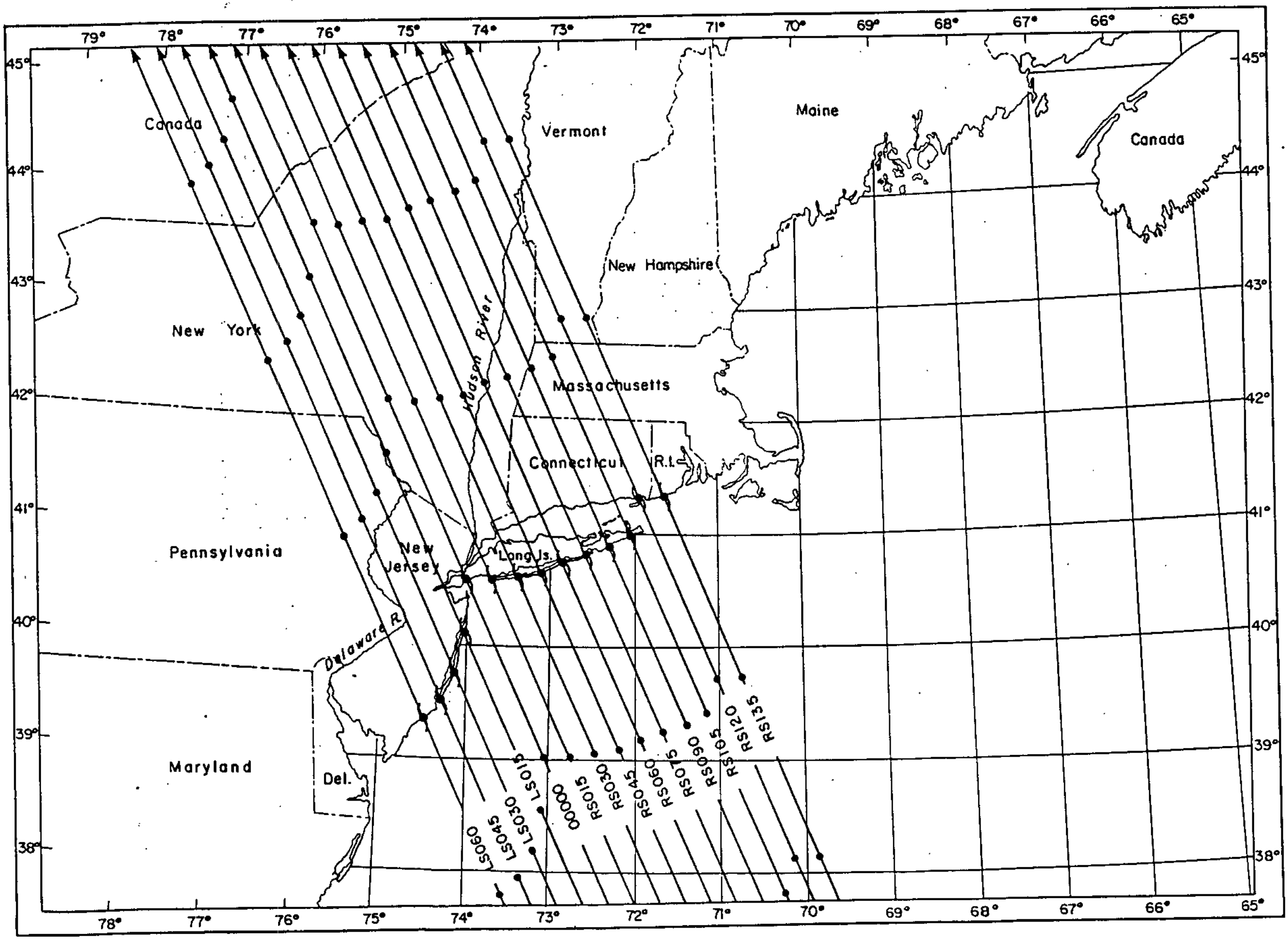

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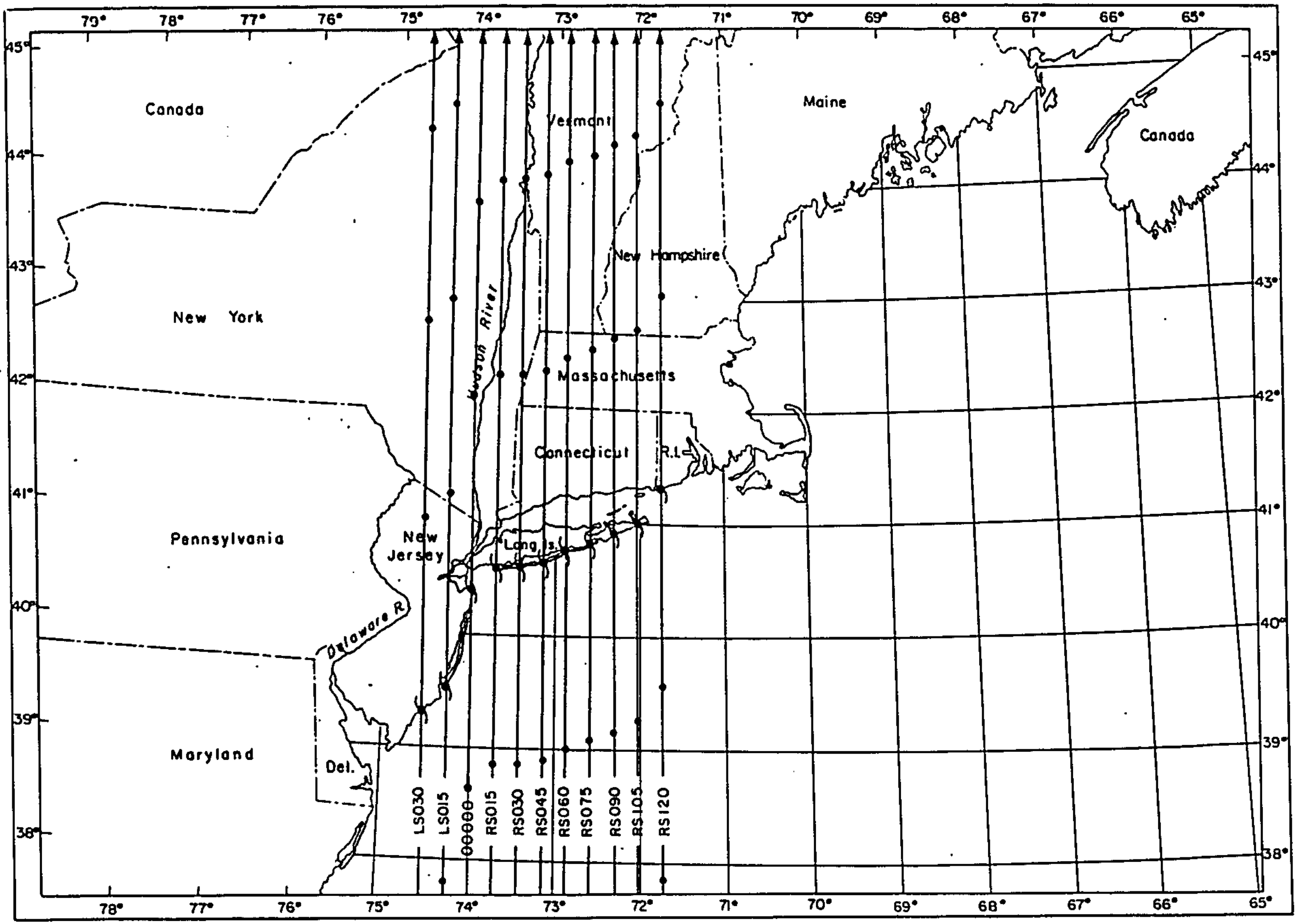
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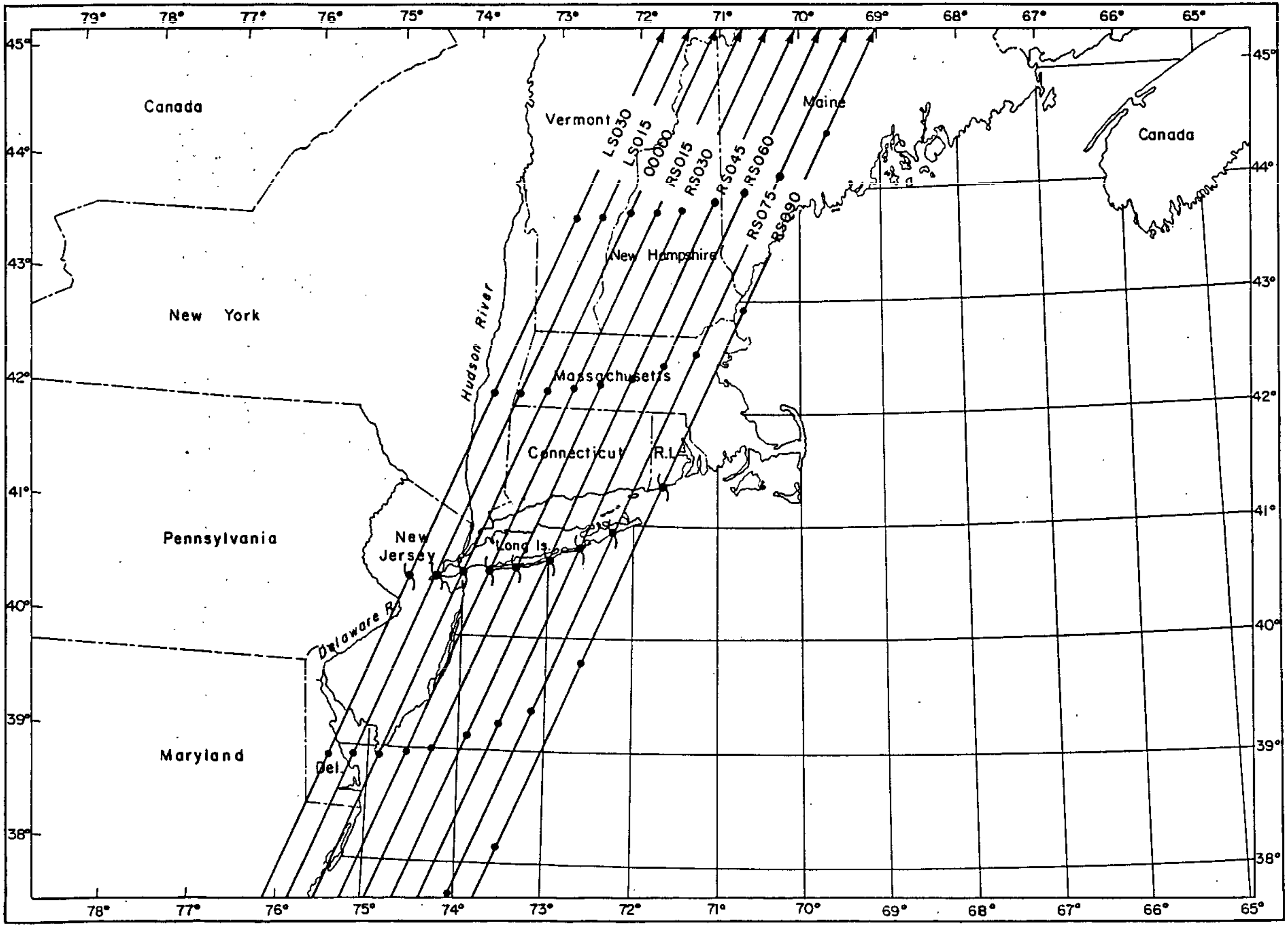

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APPENDIX B

Behavioral Analysis Support Documentation

Hurricane Evacuation Behavior in the Middle Atlantic and Northeast States

Analysis of Response in Gloria, Intended Responses, and Applicability of Generalizations from other Regions

Prepared by

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2308 Carrick Court
Tallahassee, FL 32308
(904) 893-8993

For

U.S. Army Corps of Engineers

July, 1988

Background and Approach: Behavioral Science and Hurricane Evacuation Planning

Evacuation outcomes depend upon many factors, including how the public responds to the event, and in hurricane evacuation planning, one must make assumptions about those factors. If one makes unreasonable assumptions, an actual evacuation is unlikely to proceed as anticipated. The public responses having the greatest impact upon an evacuation are

1. The number of people who evacuate.
2. The number of vehicles used in the evacuation.
3. How promptly evacuees leave.
4. The number of evacuees who leave or attempt to leave the local area and where they go.
5. The number of evacuees who seek refuge in public shelters.

Deriving Correct Assumptions

Regardless of how detailed, formal, or quantitative an evacuation plan appears, it contains assumptions about behaviors such as those discussed above. Even if the assumptions are not deliberately and explicitly addressed, there are implicit or implied values for them. For example, planners who say they make no assumptions at all regarding whether people outside the recommended evacuation zone will evacuate are in fact assuming that none of those people will leave. Any time an evacuation plan is "tested" to ascertain the length of time required to complete an evacuation under the plan, the test includes quantitative assumptions regarding behavioral factors. The issue is not whether such assumptions should be made, because they must; the issue is what the assumptions should be.

There are at least three basic ways to derive behavioral assumptions:

1. Conduct interviews with people in a large number of locations asking what they did in multiple hurricane threats, documenting patterns of behavior under various conditions (general response model).
2. Conduct interviews asking people what they did in one particular evacuation (single event survey).
3. Conduct interviews asking people what they would do during a hurricane threat (hypothetical survey).

An Integrated Approach

Building a Quantitative General Response Model

A response model can be constructed to indicate quantitative values of specific responses, given a particular set of circumstances which the planner specifies. The extent of shadow evacuation in hurricanes, for example, can be forecast by specifying the severity of the storm, hazardousness of the neighborhood, and actions taken by public officials.

This is the heart of HMG's approach to formulating behavioral assumptions for hurricane evacuation planning. We are fortunate to have amassed actual response data from many hurricane evacuations spanning a wide geographical area and a variety of hurricane threat circumstances over a period of roughly three decades. Figure 1 shows locations where post-hurricane sample surveys have been administered. Multiple markers at a location indicates that more than one survey has been conducted.

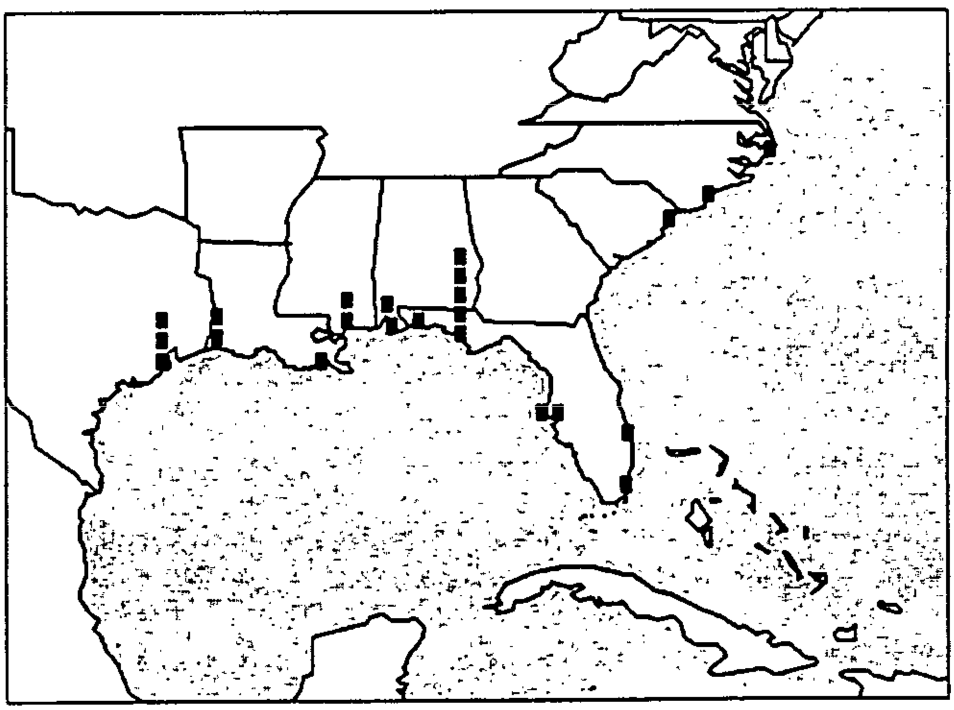


FIG. 1

HMG's general response model has been used successfully in evacuation plans along the Gulf and Atlantic coasts. Thus, for each of the behaviors to be anticipated, the model predicts a quantitative value, depending upon specific situations and circumstances specified. The structure of the general response model, including the variables affecting the principal behaviors, appears in Figure 2.

A common concern expressed about the general response model is that it is based upon responses of people in "other places" and that "our people are different." Actually the strength of the general model is that it accounts for differences in responses as they vary because of demographic characteristics of the population, actions by emergency management personnel, physical hazardousness of the study area, and so forth. Evidence of the model's validity lies in its history of accurately explaining and forecasting actual response behavior observed in a variety of places.

Single Event Actual Response Data

It is tempting to overgeneralize from a single evacuation in a particular location. Even the same people will respond differently in different sets of circumstances. Single event data can be very useful if not overused, however. If an evacuation occurs late at night, for example, and the evacuation is urgent, those circumstances tend to lead to fewer people leaving the local area than other circumstances. Thus, if the single event was a late night, urgent evacuation, it should provide an indication of the "worst case" to expect in that location for certain types of behaviors.

Single events also provide opportunities to validate the use of the general response model for forecasting in a specific location. Actual behavior in a single event can be documented and compared to that which would have been predicted

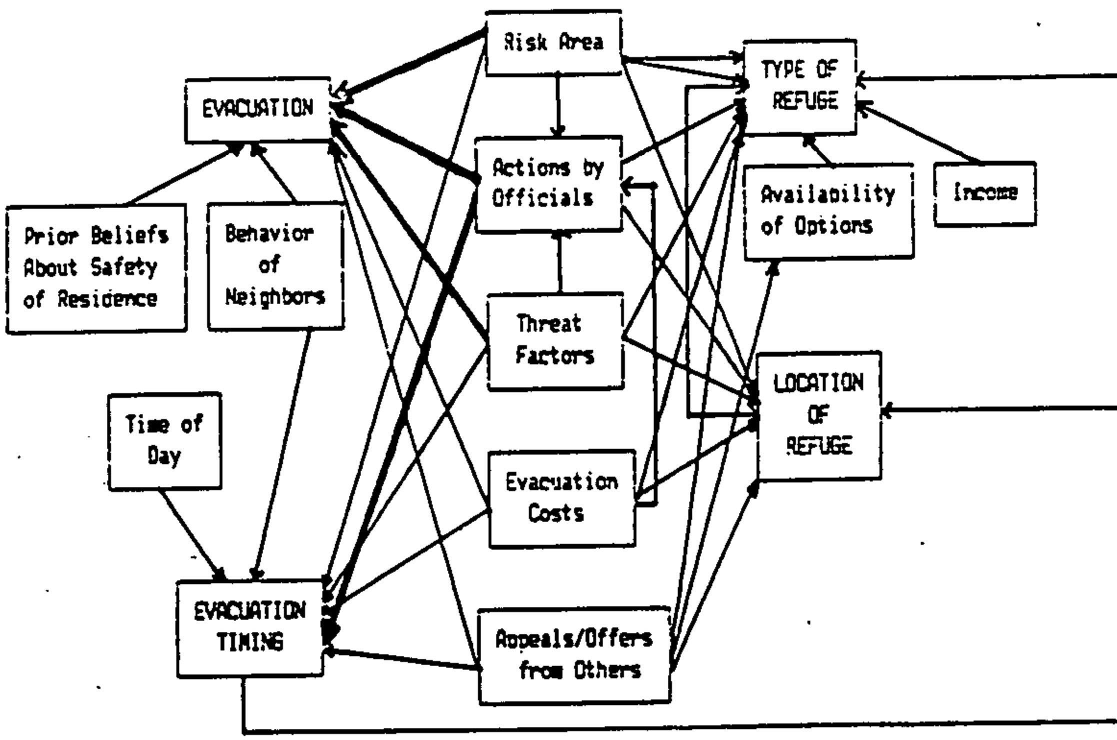

Risk Area
EVACUATION
Actions by Officials
TYPE OF REFUGE
Availability of Options
Income
Prior Beliefs About Safety of Residence
Behavior of Neighbors
Threat Factors
LOCATION OF REFUGE
Time of Day
Evacuation Costs
EVACUATION TIMING
Appeals/Offers from Others

FIG. 2

by the general response model. Its "fit" gives a clue to how much the model would have to be adjusted to work for the specific location and hazard.

Single event data was collected in this study documenting how residents responded during hurricane Gloria in 1985. This marks the first time actual response data has been collected systematically in the study area. The Gloria results will be compared to patterns predicted by the general response model to assess the model's applicability to the region. It is tempting to overgeneralize from any single evacuation, and response to future hurricane threats could vary substantially from the Gloria findings.

Hypothetical Responses

Although hypothetical response data can hardly ever be used literally for quantitative forecasts, HMG has collected much data of this nature, and it does have utility in experienced, knowledgeable hands. There are certain consistent biases in hypothetical response data, for example. People are more likely to say they would evacuate in "low risk" situations than they usually do, more likely to say they would leave early than they usually do, and more likely to say they would use public shelters than they usually do. Hypothetical response data can be adjusted to account for those sorts of known biases. Hypothetical data in one location can be compared with that collected elsewhere for an indication of relative variation between the samples. If more people in one location say they would refuse to leave than in another, they probably really are more likely to refuse. At least more effort will be required to have them move. So, although the magnitude of people saying they wouldn't leave might not be quantitatively valid, it at least gives a relative indication. This can be particularly useful when actual response data is also available in the second location.

Many respondents to the Gloria survey did not evacuate in response to the threat. That information is useful in assessing evacuation rates forecast by the general response model, but provides no information concerning other behaviors such as shelter use by those respondents. Therefore residents not evacuating in Gloria were asked hypothetical questions about what they believe they would do in future hurricane threats or what they would have done if they had evacuated in Gloria. The hypothetical responses will be compared to intended response data collected elsewhere and to actual response by other respondents in Gloria.

Vacationers

Unfortunately, the general response model is well developed only for residents. Actual response data is virtually nonexistent concerning how tourists, including RV operators, respond during hurricane threats.

HMG collected hypothetical response data with many vacationers in both North and South Carolina, but that data has most of the same weaknesses as hypothetical response data from residents. In addressing vacationer response we base most of our conclusions upon interviews conducted with tourism officials, hotel/motel managers, and campground operators following hurricane threats elsewhere.

Purpose of This Report

Methodology and results of the post-Gloria survey will be presented in the following sections of this report. Findings for all 19 survey sites will be included, with consistencies and differences noted among sites. The results will be compared to results normally observed in other hurricane prone areas to assess the applicability of the general response model to the study area. The survey data will be used in supplementary reports for each state to refine the general response model if necessary for use in deriving planning assumptions for each state.

Survey Methodology

Sampling

Corps of Engineers representatives from Norfolk, Baltimore, Philadelphia, New York, and New England districts worked with HMG and state and local emergency management officials to select survey sites and sample sizes in each state from Virginia through Massachusetts. Criteria for selection varied from state to state, but in most instances the locations were important in and of themselves because of evacuation concerns at those sites or because the places were representative of other areas to which generalizations could be extended. The sample sites are displayed in Figure 3.

Virginia Beach, Virginia

Approximately 100 telephone interviews were completed with households having telephone prefixes 420, 427, and 428. Phone numbers were selected from the local telephone directory.

Norfolk, Virginia

Approximately 100 telephone interviews were completed with households having telephone prefixes 480, 489, 583, 587, and 588. Phone numbers were selected from the local telephone directory.

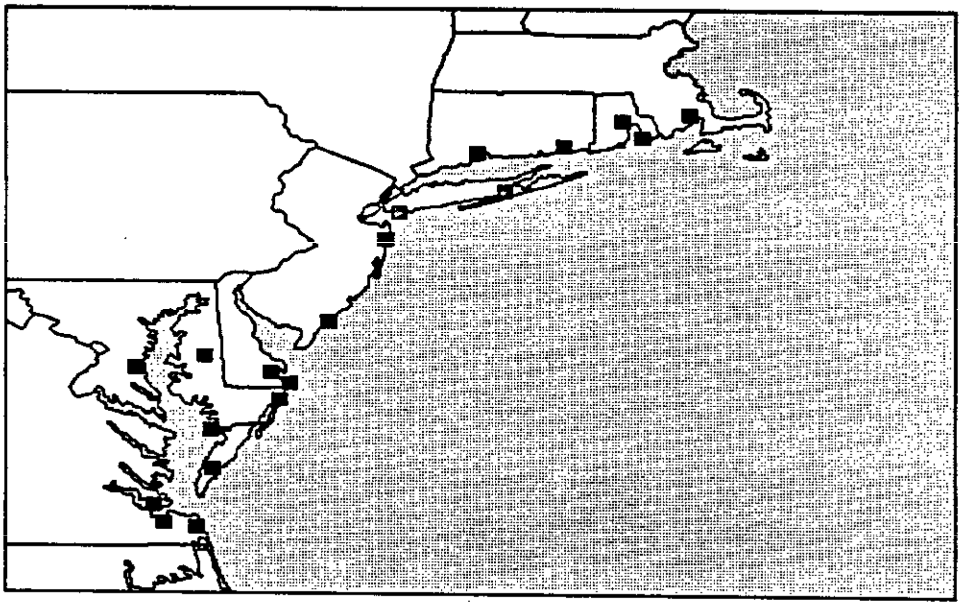


FIG. 3

Newport News, Virginia

Approximately 100 telephone interviews were completed with households having telephone prefixes 245 at addresses south of 39th street and east of Jefferson Avenue. Phone numbers were selected from the local telephone directory.

Virginia Eastern Shore

Approximately 100 telephone interviews were completed with households in a number of Northampton and Accomack County towns suggested by local emergency management officials. Phone numbers were selected from the local telephone directory after cross referencing the addresses with elevation maps of the area. Predominant prefixes were 331, 787, 442, 336, 824, and 891.

Chrisfield, Maryland

Approximately 100 telephone interviews were completed with households having telephone prefix 968 and having a Chrisfield address. Phone numbers were selected from the local telephone directory.

Anne Arundel County, Maryland

Approximately 100 telephone interviews were completed with households having telephone prefixes 741, 798, 867 and having an address in one of several specific towns on or near Chesapeake Bay south of Annapolis (including Deale, Avalon Shores, Rose Haven). Phone numbers were selected from the local telephone directory.

Denton, Maryland

Approximately 100 telephone interviews were completed with households having telephone prefix 479 and having an address in Denton or West Denton. Phone numbers were selected from the local telephone directory.

Ocean City, Maryland

Approximately 100 telephone interviews were completed with households having telephone prefixes 250, 289, 524, 723 and having an address in Ocean City. Phone numbers were selected from the local telephone directory.

Delaware "Beach"

Approximately 100 telephone interviews were completed with households having telephone prefix 539 and having an address in Bethany Beach or South Bethany. Phone numbers were selected from the local telephone directory.

Delaware "Mainland"

Approximately 100 telephone interviews were completed with households having telephone prefix 945, which included Millsboro and nearby towns. Phone numbers were selected from the local telephone directory.

"Southern" New Jersey

Approximately 100 telephone interviews were completed with households in Ocean City having telephone prefixes 390, 391, 398, and 399. Phone numbers were selected from the local telephone directory.

"Northern" New Jersey

Approximately 100 telephone interviews were completed with households in Ocean Grove, Bradley Beach, and Avon having telephone prefixes 774, 775, 776, 918, 922, and 988. Phone numbers were selected from the local telephone directory.

"Rockaway" New York

Approximately 200 telephone interviews were completed with households in the Far Rockaway, Belle Harbor, Edgemere areas of Queens. The area is referred to as Zone 13 in the NYNEX directory and includes several prefixes (318, 327, 337, 471, 474, 634, and 945). Phone numbers were selected from the local telephone directory.

"Suffolk" New York

Approximately 200 telephone interviews were completed with households in Quoge and Westhampton Beach in Suffolk County on Long Island (with prefixes 635 and 288). Phone numbers were selected from the local telephone directory.

"Fairfield" Connecticut

Approximately 100 telephone interviews were completed with households in Fairfield, Bridgeport, Stratford, and Milford. Phone numbers were selected from Hill-Donnelly directories after identifying streets from maps provided by the New England District showing Category 2 surge inundation areas.

"Groton" Connecticut

Approximately 100 telephone interviews were completed with households in Groton, Stonington, and Mystic. Phone numbers were selected from Hill-Donnelly directories after identifying streets from maps provided by the New England District showing Category 2 surge inundation areas.

Warwick, Rhode Island

Approximately 100 telephone interviews were completed with households in Warwick. Phone numbers were selected from the Polk directory after identifying streets from Flood Insurance maps provided by the New England District.

Newport, Rhode Island

Approximately 100 telephone interviews were completed with households in Newport. Phone numbers were selected from the Cole directory after identifying streets from Flood Insurance maps provided by the New England District.

Wareham, Massachusetts

Approximately 100 telephone interviews were completed with households in Wareham. Phone numbers were selected from the New Bedford and vicinity Cole directory after identifying streets from Flood Insurance maps provided by the New England District.

Sample Size Considerations

There is always some probability of error when generalizing from a sample to the larger population from which it was drawn. If 100 residents of the surge prone area of Warwick, Rhode Island are selected randomly and interviewed, those 100 people are referred to as a sample. All people living within the Warwick surge zone from which the sample was selected constitute the population to which we attempt to generalize from information gained only from the sample.

A sample of 100 provides figures which, 90% of the time, will be within 5 to 8 percentage points of the actual population values. A sample of 200 will be within 3 to 5 percentage points of the true population value 90% of the time. This is true even if the population includes millions of people. For some purposes such small samples are not adequately reliable. In this case, however, the survey data is but one component in a broader, more important methodology and provides sufficient precision for the comparative purposes intended for it. The responses obtained in this survey are compared to response patterns observed under the general response model to assess whether the two are generally consistent. Small differences are not of consequence.

One should be especially cautious when generalizing from subsets of the samples of 100. For example, in many locations only about a third of the respondents evacuated. Therefore, in those sites only about 35 people were asked what sort of shelter they used. Answers based on interviews with 35 people are usually reliable within only 11 percentage points, which is a substantial margin of uncertainty.

One point to keep in mind, therefore, is that sample differences are not necessarily indicative of differences within the population. For example, if 70% of 100 respondents in one site left the local area when evacuating in Gloria, and only 60% of 100 respondents in a second site left the local area, that would probably not be sufficient evidence to conclude that people in the former location were more likely overall to leave the local area than people in the latter location. Figures of 70% and 50%, however, would usually indicate population differences in that example.

At times it is useful to ascertain whether, for example, wealthy evacuees were any less likely to use public shelters than low income evacuees. To answer those sorts of questions reliably, samples must sometimes be fairly large.

Therefore, to analyze those kinds of crosstabulations, the individual site samples will be aggregated in this report. Samples from Virginia through New Jersey are lumped into a single group which will be referred to as the southern sample, and New York through Massachusetts are grouped into a northern sample.

In all the tables presenting survey results, sample sizes are included. The reader is advised to always note the sample size before deciding how much confidence to place in a particular result.

Interview Questions

The questions asked of respondents are included as Appendix I. Questions 8a, 14a, 16a, 17a, and 17b were asked in the northern area only. Question 17 was asked in both areas, but in the northern area the response categories were made more specific.

Sample Characteristics

Age

Four questions were asked which could provide background information useful in explaining variations in response to Gloria and to the hypothetical questions. Figure 4 shows the age distribution of respondents across the 19 sites. From a behavioral perspective the most meaningful age group is probably people over 65. At a few of the sites a third of the sample is over 65. Warwick has the smallest percentage (10%) over 65.

Income

Respondents were asked to indicate which of five categories described their annual family income. Income categories were used to make the information less specific and therefore to increase the willingness to provide the information. Nevertheless roughly 15% of the respondents refused to reveal their income. Moreover, there is no way of knowing whether other respondents were candid and accurate in their responses.

Based upon answers provided, Figure 5 indicates incomes at the 19 sites. Chrisfield, MD and Newport News, VA had the greatest incidence of low income interviewees. More than a third in those locations reported incomes below $10,000.

Housing

The vast majority of respondents lived in single-family detached housing units (Figure 6). The only two exceptions were Rockaway, NY were 39% said they lived in high-rise apartments and on the Delaware mainland where 55% lived in

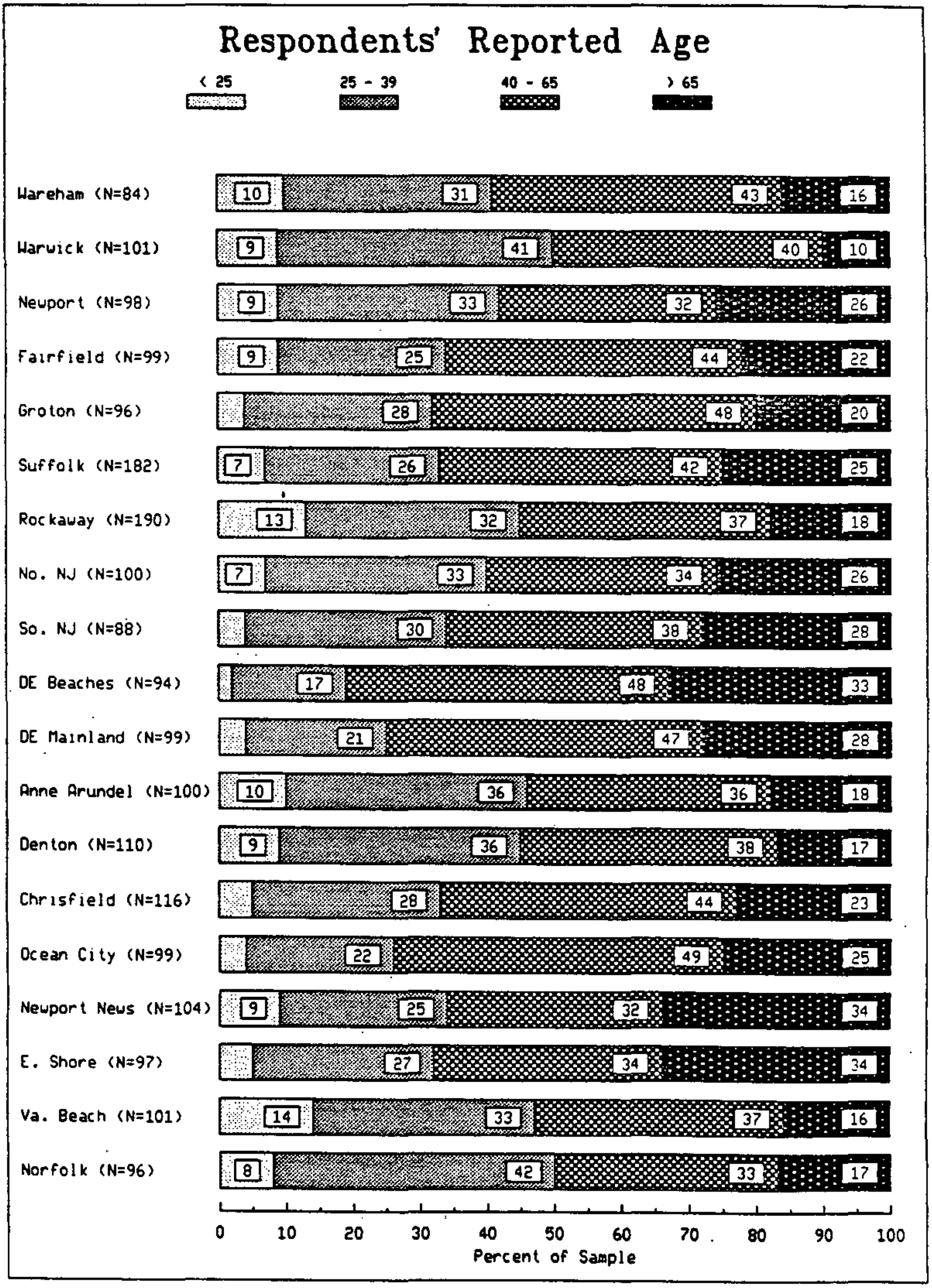

Respondents' Reported Age
< 25
25 - 39
40 - 65
> 65
Wareham (N=84)
10
31
43
16
Warwick (N=101)
9
41
40
10
Newport (N=98)
9
33
32
26
Fairfield (N=99)
9
25
44
22
Groton (N=96)
28
48
20
Suffolk (N=182)
7
26
42
25
Rockaway (N=190)
13
32
37
18
No. NJ (N=100)
7
33
34
26
So. NJ (N=88)
30
38
28
DE Beaches (N=94)
17
48
33
DE Mainland (N=99)
21
47
28
Anne Arundel (N=100)
10
36
36
18
Denton (N=110)
9
36
38
17
Chrisfield (N=116)
28
44
23
Ocean City (N=99)
22
49
25
Newport News (N=104)
9
25
32
34
E. Shore (N=97)
27
34
34
Va. Beach (N=101)
14
33
37
16
Norfolk (N=96)
8
42
33
17
0 10 20 30 40 50 60 70 80 90 100
Percent of Sample

FIG. 4

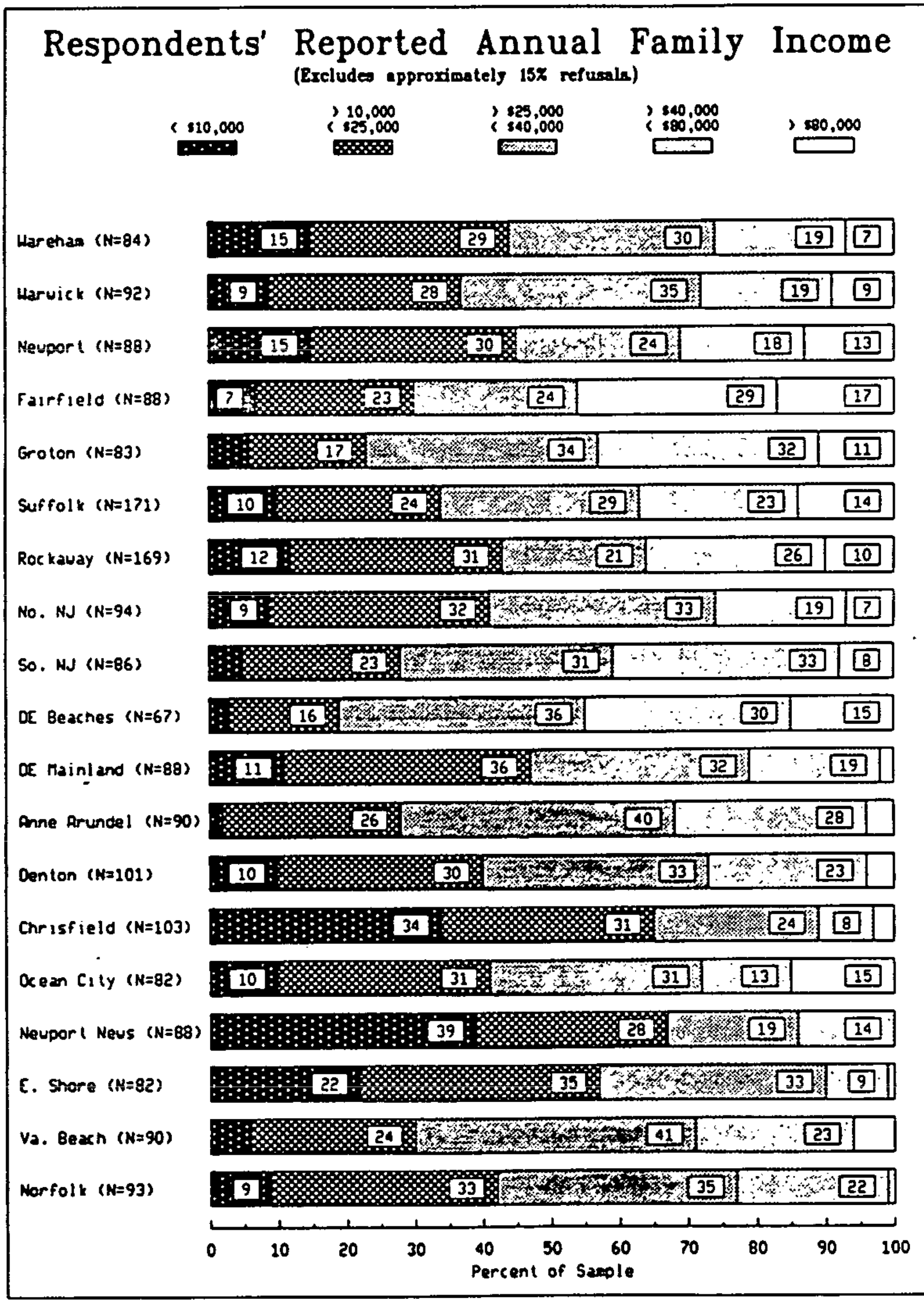

Respondents' Reported Annual Family Income
(Excludes approximately 15% refusals)
< $10,000
> 10,000 < $25,000
> $25,000 < $40,000
> $40,000 < $80,000
> $80,000
Wareham (N=84)
Warwick (N=92)
Newport (N=88)
Fairfield (N=88)
Groton (N=83)
Suffolk (N=171)
Rockaway (N=169)
No. NJ (N=94)
So. NJ (N=86)
DE Beaches (N=67)
DE Mainland (N=88)
Anne Arundel (N=90)
Denton (N=101)
Chrisfield (N=103)
Ocean City (N=82)
Newport News (N=88)
E. Shore (N=82)
Va. Beach (N=90)
Norfolk (N=93)
Percent of Sample

FIG. 5

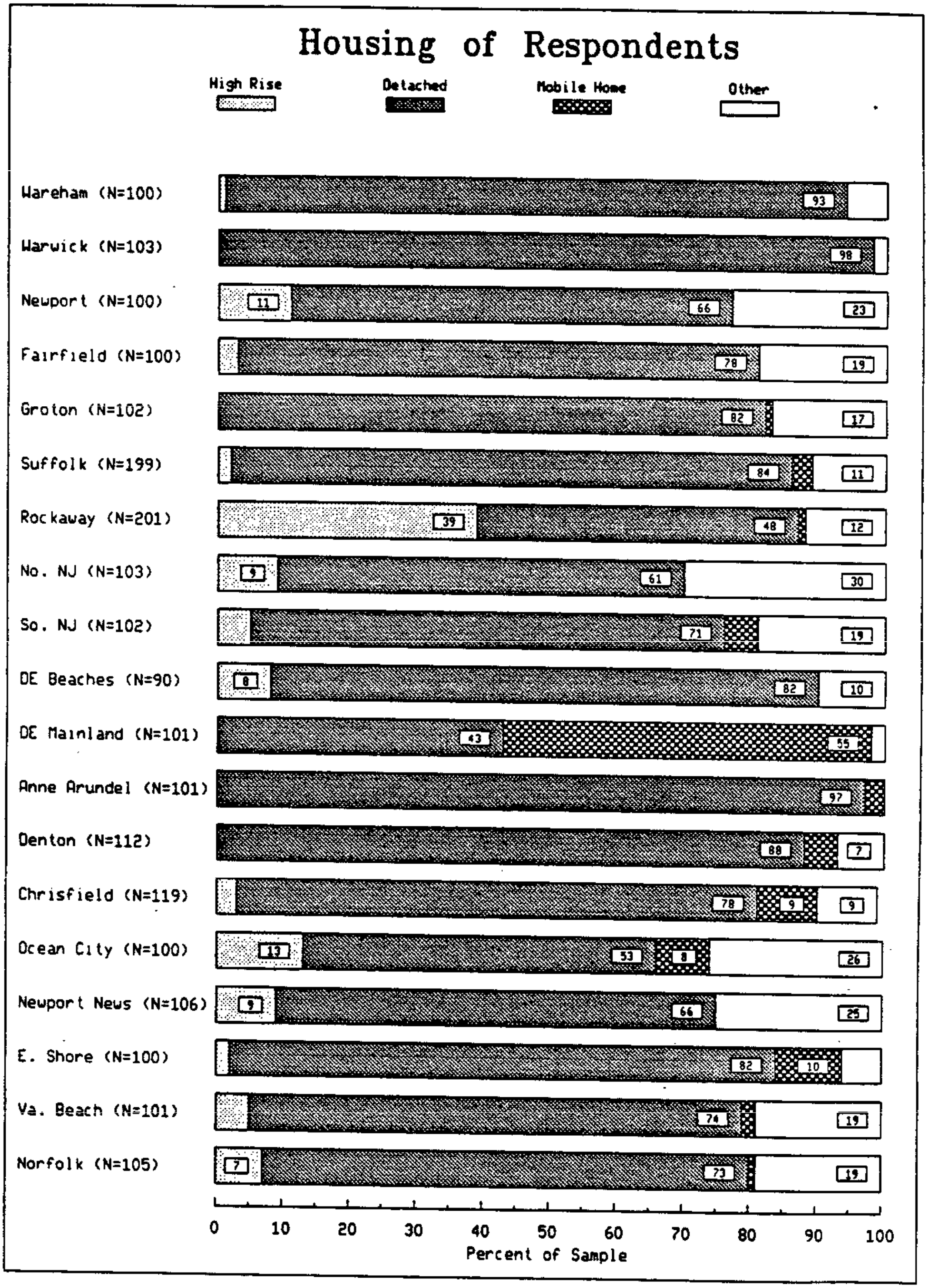

Housing of Respondents
High Rise
Detached
Mobile Home
Other
Wareham (N=100)
Warwick (N=103)
Newport (N=100)
Fairfield (N=100)
Groton (N=102)
Suffolk (N=199)
Rockaway (N=201)
No. NJ (N=103)
So. NJ (N=102)
DE Beaches (N=90)
DE Mainland (N=101)
Anne Arundel (N=101)
Denton (N=112)
Chrisfield (N=119)
Ocean City (N=100)
Newport News (N=106)
E. Shore (N=100)
Va. Beach (N=101)
Norfolk (N=105)
Percent of Sample

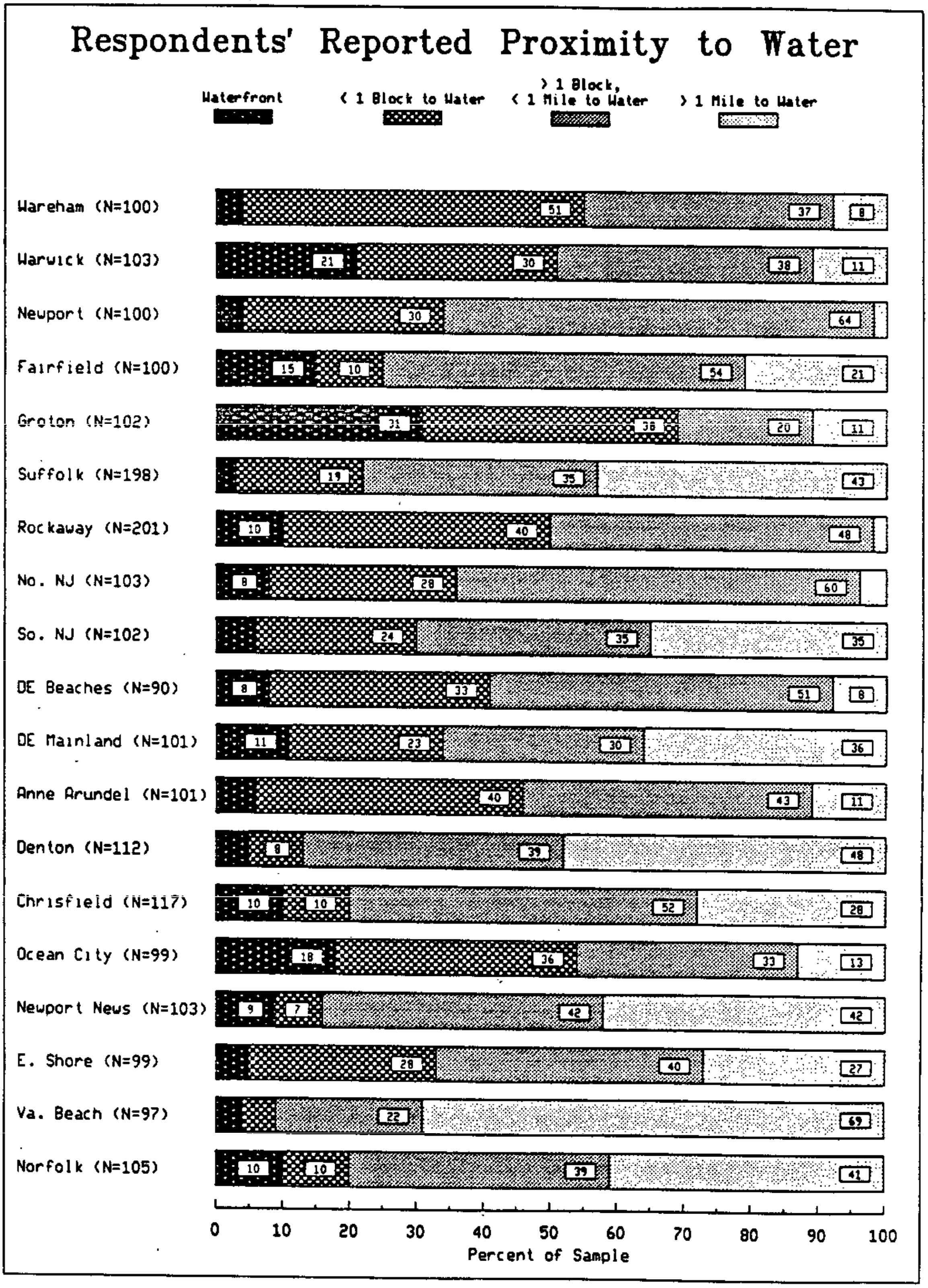
FIG. 6

mobile homes. "Other" refers primarily to duplexes and medium density apartments or condos.

Proximity to Water

The sample sites themselves vary in terms of flooding propensity and proximity to water, but there is also variation within the sites (Fig. 7). At most interview locations between 25% and 50% of the respondents said they lived within a block of a water body (ocean, harbor, bay, sound). As many as 31% (Groton) said they lived adjacent to such a water body. Many of the sites also had a substantial portion of the respondents living more than a mile from any water.

To some extent measurement of this variable is subject to judgment on the part of people answering the question. Most people underestimate distances, for example, so some of the individuals saying they lived more than a block but less than a mile from water might actually live more than a mile from water. Overall, though, it's reasonable to assume that most people in the "more than a mile" category are in fact farther from water than most in the other categories.



Respondents' Reported Proximity to Water
Waterfront
< 1 Block to Water
> 1 Block, < 1 Mile to Water
> 1 Mile to Water
Wareham (N=100)
Warwick (N=103)
Newport (N=100)
Fairfield (N=100)
Groton (N=102)
Suffolk (N=198)
Rockaway (N=201)
No. NJ (N=103)
So. NJ (N=102)
DE Beaches (N=90)
DE Mainland (N=101)
Anne Arundel (N=101)
Denton (N=112)
Chrisfield (N=117)
Ocean City (N=99)
Newport News (N=103)
E. Shore (N=99)
Va. Beach (N=97)
Norfolk (N=105)
0 10 20 30 40 50 60 70 80 90 100
Percent of Sample

FIG. 7

Evacuation

In only 5 of the 19 survey sites did a majority of respondents evacuate: Delaware beaches, Delaware mainland, Ocean City, MD, Southern New Jersey, and Warwick, RI (Figure 8). Denton, MD had by far the lowest evacuation rate (8% and too small to break down in a number of subsequent figures). These figures alone, however, are not useful in evaluating the applicability of the general response model to the region. For that, response variations in the sample must be analyzed.

Reasons Given for Evacuating

Figure 9 depicts the reasons given for leaving. It should be noted that these answers were in response to an open-ended question in which people simply volunteered reasons. Asking specifically whether each factor played a role in their decision to leave would have almost certainly resulted in more people attributing their decision to these factors.

It should also be noted that this is not the most reliable procedure for ascertaining what actually determined evacuation behavior. Most people are poor at articulating the factors which truly cause their behavior.

Reasons fall into two general types of response: information sources and information itself. Most evacuees in all 19 sites indicated that they left because of information from public officials, the National Weather Service, police, media, or friends and relatives. The proportions vary from place to place, but the media was mentioned more than other sources in most locations.

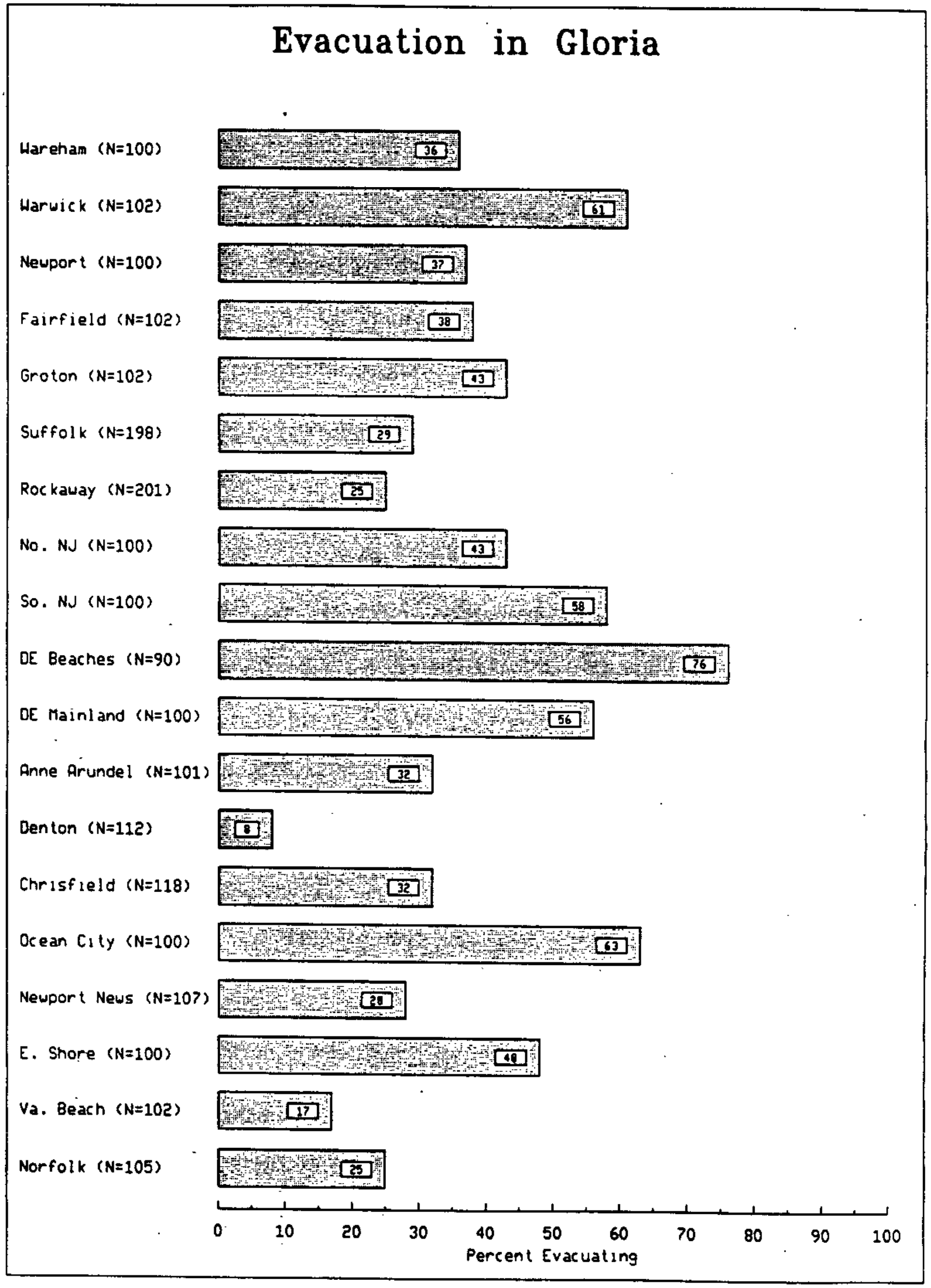
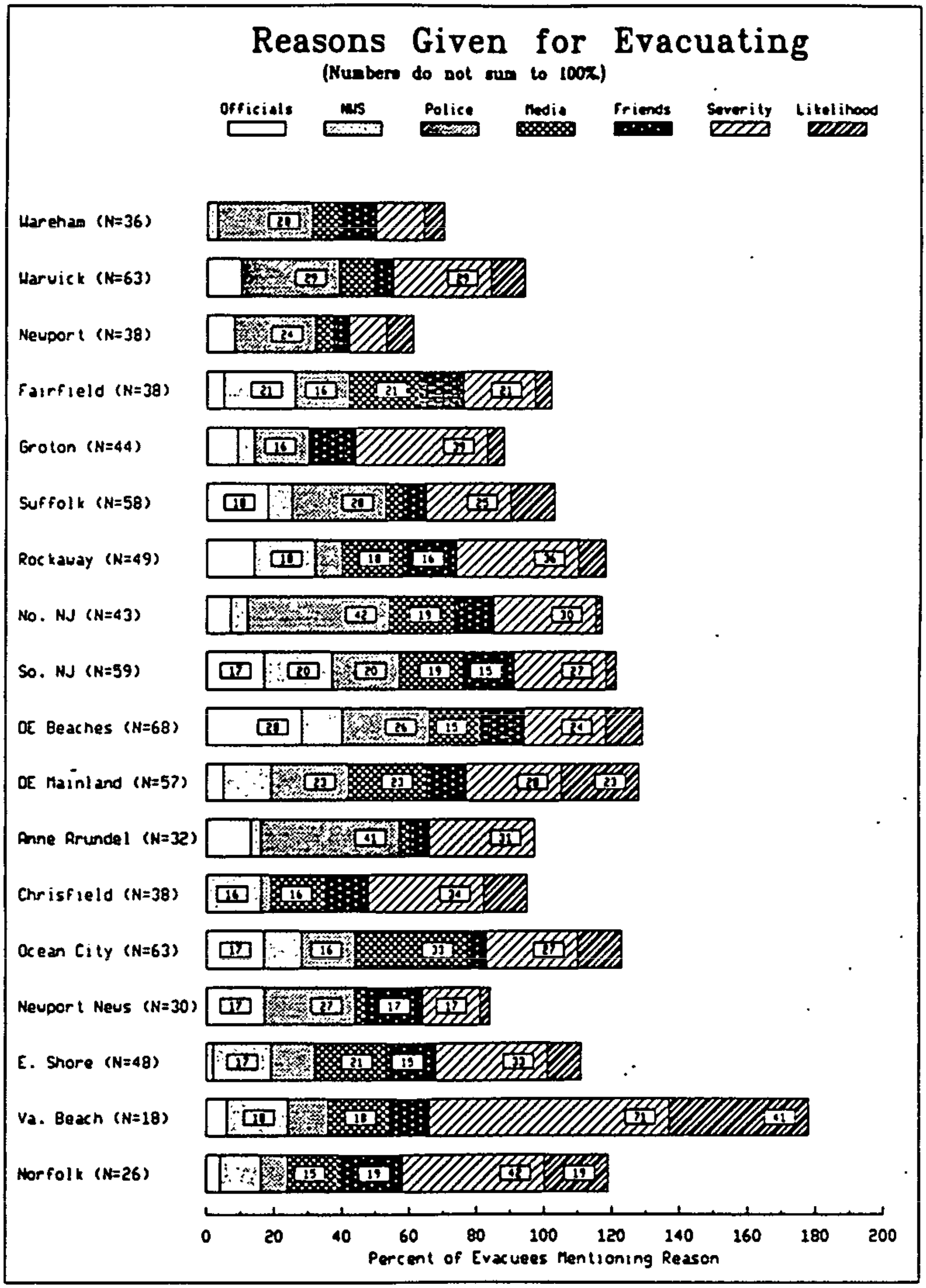

Evacuation in Gloria
Wareham (N=100)
36
Warwick (N=102)
61
Newport (N=100)
37
Fairfield (N=102)
38
Groton (N=102)
43
Suffolk (N=198)
29
Rockaway (N=201)
25
No. NJ (N=100)
43
So. NJ (N=100)
58
DE Beaches (N=90)
76
DE Mainland (N=100)
56
Anne Arundel (N=101)
32
Denton (N=112)
8
Chrisfield (N=118)
32
Ocean City (N=100)
63
Newport News (N=107)
28
E. Shore (N=100)
48
Va. Beach (N=102)
17
Norfolk (N=105)
25
0
10
20
30
40
50
60
70
80
90
100
Percent Evacuating

FIG. 8



Reasons Given for Evacuating
(Numbers do not sum to 100%)
Officials
NWS
Police
Media
Friends
Severity
Likelihood
Wareham (N=36)
Warwick (N=63)
Newport (N=38)
Fairfield (N=38)
Groton (N=44)
Suffolk (N=58)
Rockaway (N=49)
No. NJ (N=43)
So. NJ (N=59)
DE Beaches (N=68)
DE Mainland (N=57)
Anne Arundel (N=32)
Chrisfield (N=38)
Ocean City (N=63)
Newport News (N=30)
E. Shore (N=48)
Va. Beach (N=18)
Norfolk (N=26)
0
20
40
60
80
100
120
140
160
180
200
Percent of Evacuees Mentioning Reason

FIG. 9

The two sorts of information mentioned concerned either the severity of hurricane Gloria or the likelihood that the storm would strike the respondent's location. Severity was cited more frequently than likelihood of hitting.

Effect of Evacuation Notices

Figure 10 shows the percentage of interviewees who, when asked explicitly, said they that public officials in their area said they should evacuate. Affirmative responses do not necessarily mean that officials actually said the respondents should leave, but the respondents believed that to have been the case. At 7 sites more than 45% said they heard officials say to leave. The beach area of the Delaware sample was highest at 74%. Denton was by far the lowest at 6%. It is no coincidence that the Delaware beach sample also had the highest evacuation rate and Denton the lowest.

Figure 11 illustrates the point even more clearly. In every survey site, people who said they heard evacuation notices from officials were substantially more likely to evacuate than those who said they didn't hear such notices. Only in Delaware and Ocean City, MD were the differences small, but in those instances a high percentage of both groups left. Overall, as indicated by the two sets of bars at the bottom of the graph, people hearing from officials that they were supposed to evacuate were three times as likely to evacuate as others.

Most people saying they heard an official evacuation notice understood the notice to be a recommendation rather than a mandatory order (Fig. 12). Respondents believing they were being ordered to evacuate were much more likely to leave than those who believed the notice was advisory (Fig. 13). In the northern sample 93% "hearing" an order evacuated, as did 84% in the southern area.

The effect of perceived notices and orders in Gloria was exactly the effect observed elsewhere in other hurricanes. If officials want residents to evacuate, they must tell them. But if they tell them, compliance will be good.

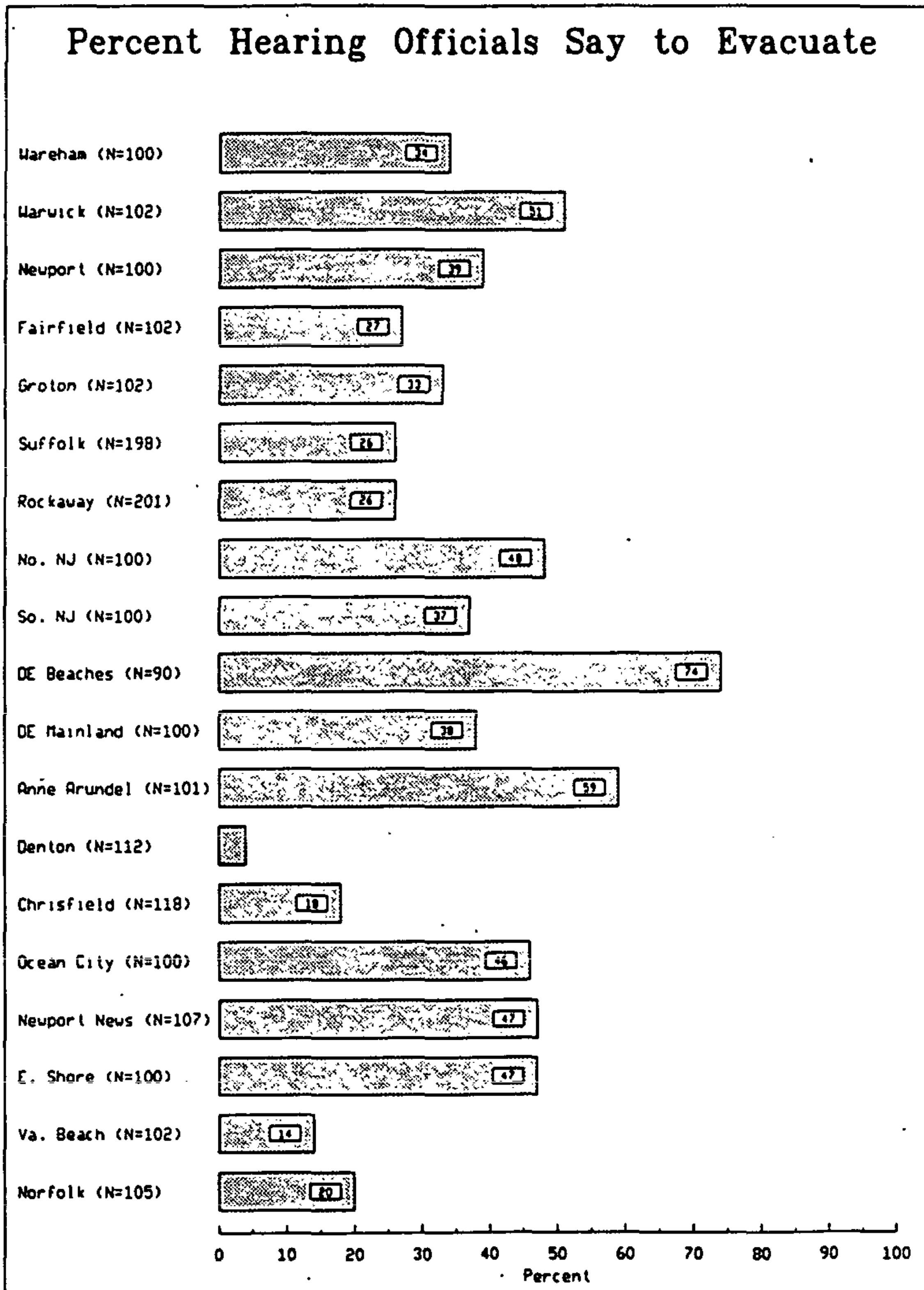
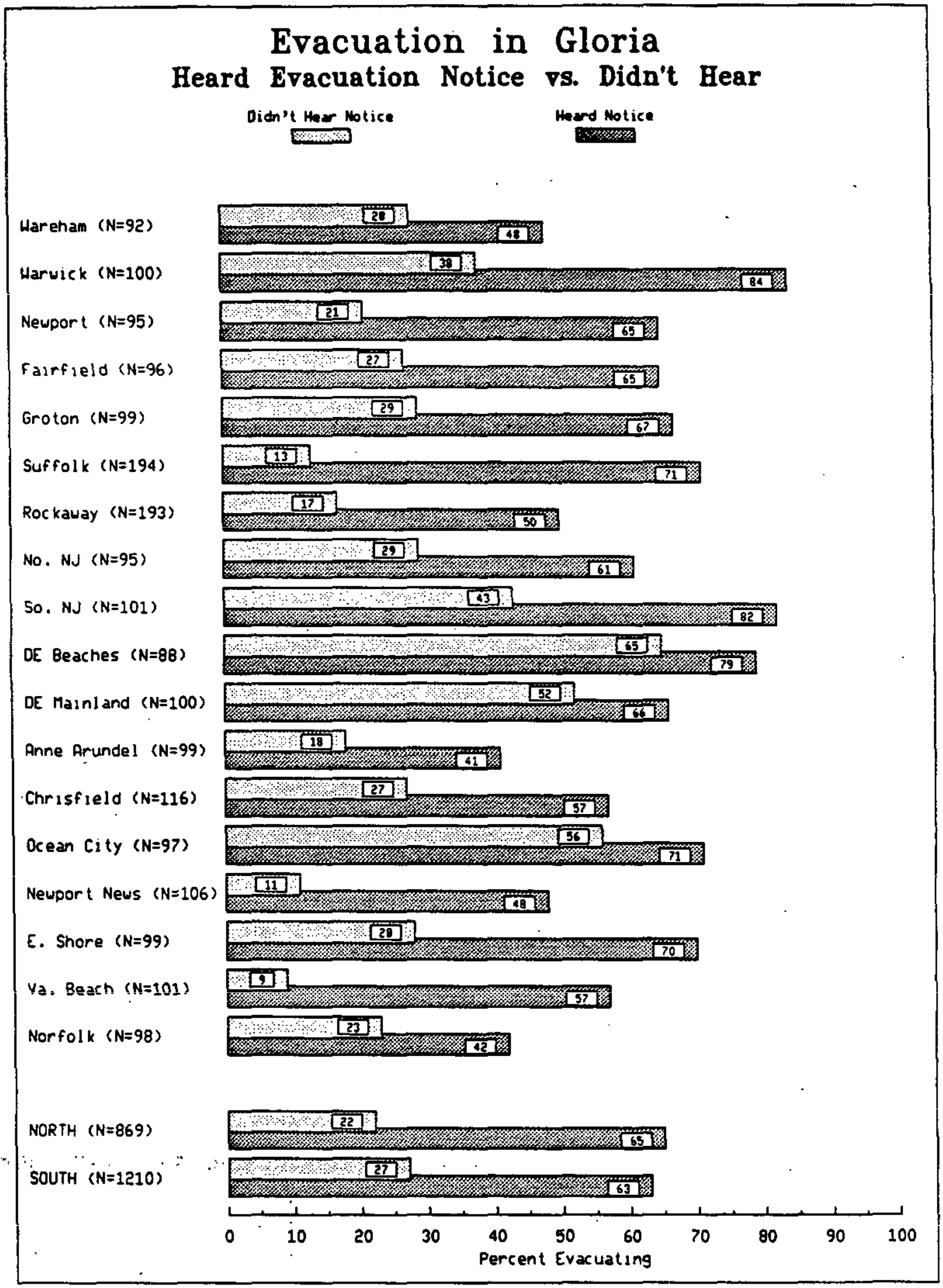

Percent Hearing Officials Say to Evacuate
Wareham (N=100)
Warwick (N=102)
Newport (N=100)
Fairfield (N=102)
Groton (N=102)
Suffolk (N=198)
Rockaway (N=201)
No. NJ (N=100)
So. NJ (N=100)
DE Beaches (N=90)
DE Mainland (N=100)
Anne Arundel (N=101)
Denton (N=112)
Chrisfield (N=118)
Ocean City (N=100)
Newport News (N=107)
E. Shore (N=100)
Va. Beach (N=102)
Norfolk (N=105)
34
51
39
27
33
26
26
48
37
74
38
59
18
46
47
47
14
20
0
10
20
30
40
50
60
70
80
90
100
Percent

FIG. 10



Evacuation in Gloria
Heard Evacuation Notice vs. Didn't Hear
Didn't Hear Notice
Heard Notice
Wareham (N=92) 28 48
Warwick (N=100) 38 84
Newport (N=95) 21 65
Fairfield (N=96) 27 65
Groton (N=99) 29 67
Suffolk (N=194) 13 71
Rockaway (N=193) 17 50
No. NJ (N=95) 29 61
So. NJ (N=101) 43 82
DE Beaches (N=88) 65 79
DE Mainland (N=100) 52 66
Anne Arundel (N=99) 18 41
Chrisfield (N=116) 27 57
Ocean City (N=97) 56 71
Newport News (N=106) 11 48
E. Shore (N=99) 28 70
Va. Beach (N=101) 9 57
Norfolk (N=98) 23 42
NORTH (N=869) 22 65
SOUTH (N=1210) 27 63
0 10 20 30 40 50 60 70 80 90 100
Percent Evacuating

FIG. 11

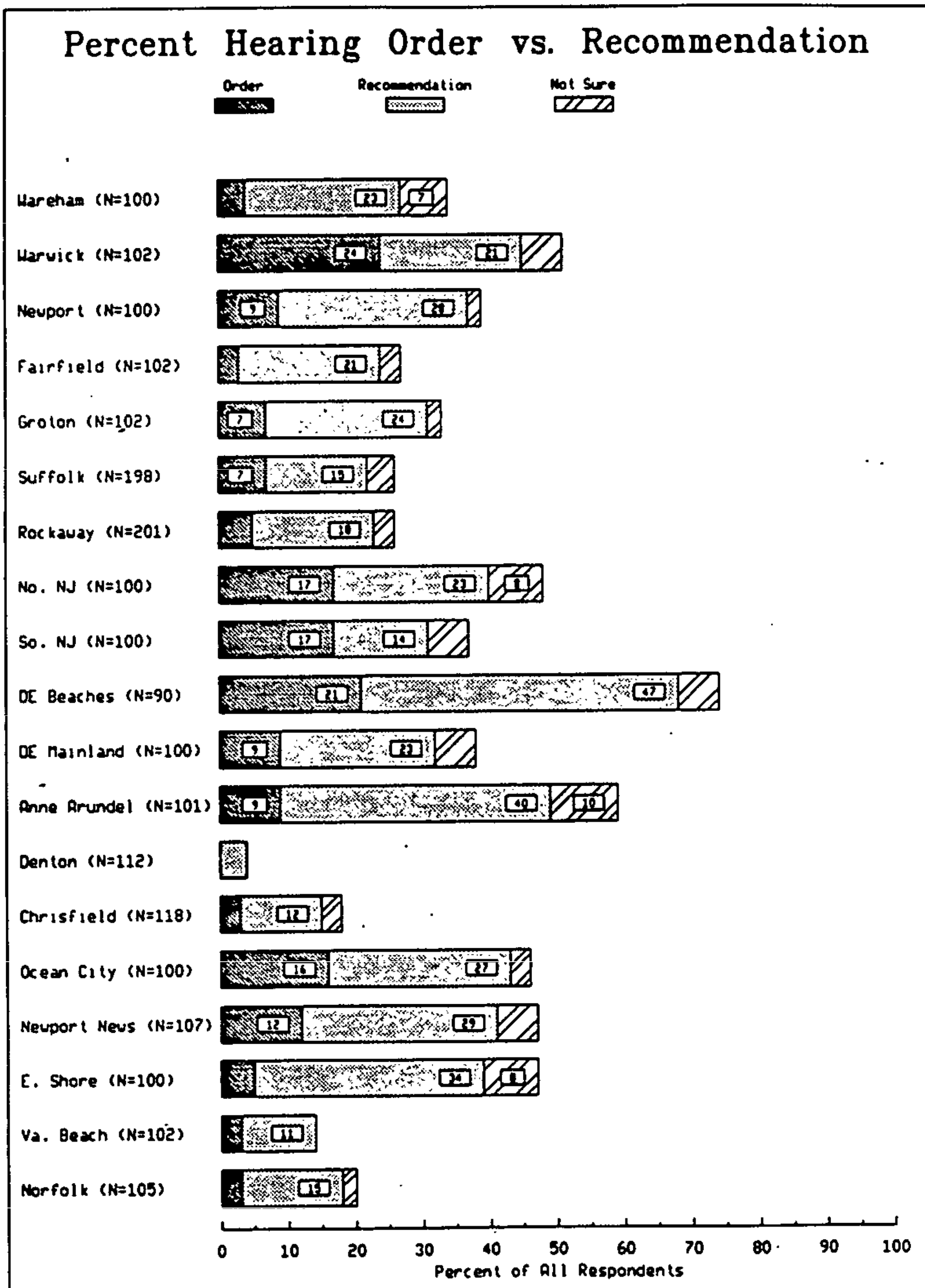

Percent Hearing Order vs. Recommendation
Order
Recommendation
Not Sure
Wareham (N=100)
Warwick (N=102)
Newport (N=100)
Fairfield (N=102)
Groton (N=102)
Suffolk (N=198)
Rockaway (N=201)
No. NJ (N=100)
So. NJ (N=100)
DE Beaches (N=90)
DE Mainland (N=100)
Anne Arundel (N=101)
Denton (N=112)
Chrisfield (N=118)
Ocean City (N=100)
Newport News (N=107)
E. Shore (N=100)
Va. Beach (N=102)
Norfolk (N=105)
0
10
20
30
40
50
60
70
80
90
100
Percent of All Respondents

FIG. 12

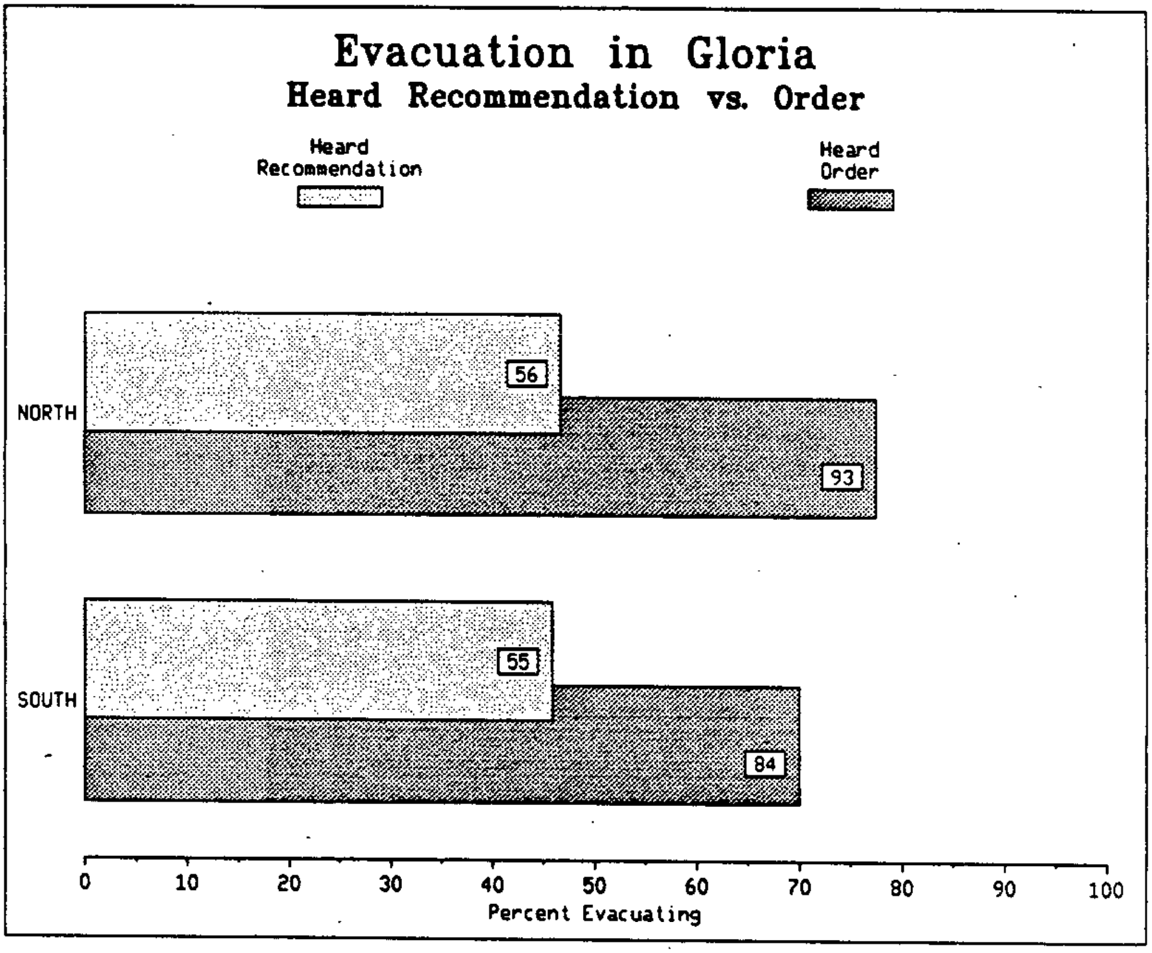

Evacuation in Gloria
Heard Recommendation vs. Order
Heard Recommendation
Heard Order
NORTH
SOUTH
56
93
55
84
0
10
20
30
40
50
60
70
80
90
100
Percent Evacuating

FIG. 13

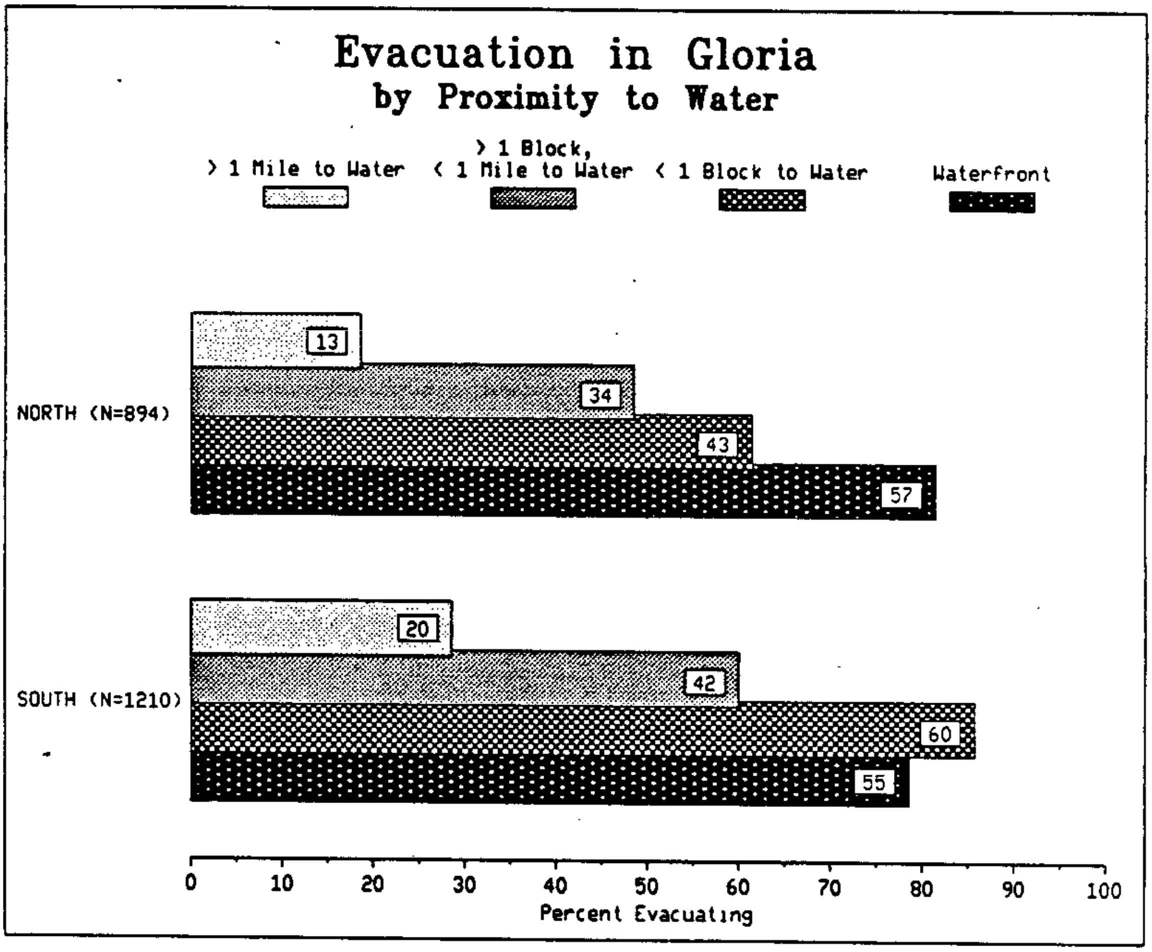
It is also important that roughly 25% of the people not hearing official evacuation notices also left. The "shadow" evacuation phenomenon, whereby more people leave than actually need to, is common.

Effect of Perceived Safety

Proximity to water is not a perfect surrogate for hazardousness of a dwelling because elevation might rise quickly only a short distance from the shore or flooding might extend miles inland. In general, though, people who lived closer to the water were more likely to evacuate than other people (Fig. 14). The only confusion in the trend was in the southern sample where people living within a block of water appeared slightly more likely to evacuate than waterfront residents.

This pattern is common in hurricane evacuations and predicted by the general response model. Officials are more likely to tell people in more hazardous locations to evacuate, but residents of those areas are also more aware of the risk they take in staying.

Interviewees in the northern sample were asked whether they felt their house would be safe in a hurricane. A majority in all sites except Warwick felt their home would be safe, but in all locations a substantial minority considered their dwellings unsafe (Fig. 15). People believing their house was unsafe were more than twice as likely to evacuate as others (Fig. 16). The fact that only about half those saying their home would be unsafe evacuated in Gloria attests to the fact that more than belief that one's dwelling is dangerous is necessary to compel people to evacuate. Figure 17 depicts the association between belief one's house is safe (unsafe) and proximity to water.



Evacuation in Gloria
by Proximity to Water
> 1 Mile to Water
> 1 Block, < 1 Mile to Water
< 1 Block to Water
Waterfront
NORTH (N=894)
13
34
43
57
SOUTH (N=1210)
20
42
60
55
0 10 20 30 40 50 60 70 80 90 100
Percent Evacuating

FIG. 14

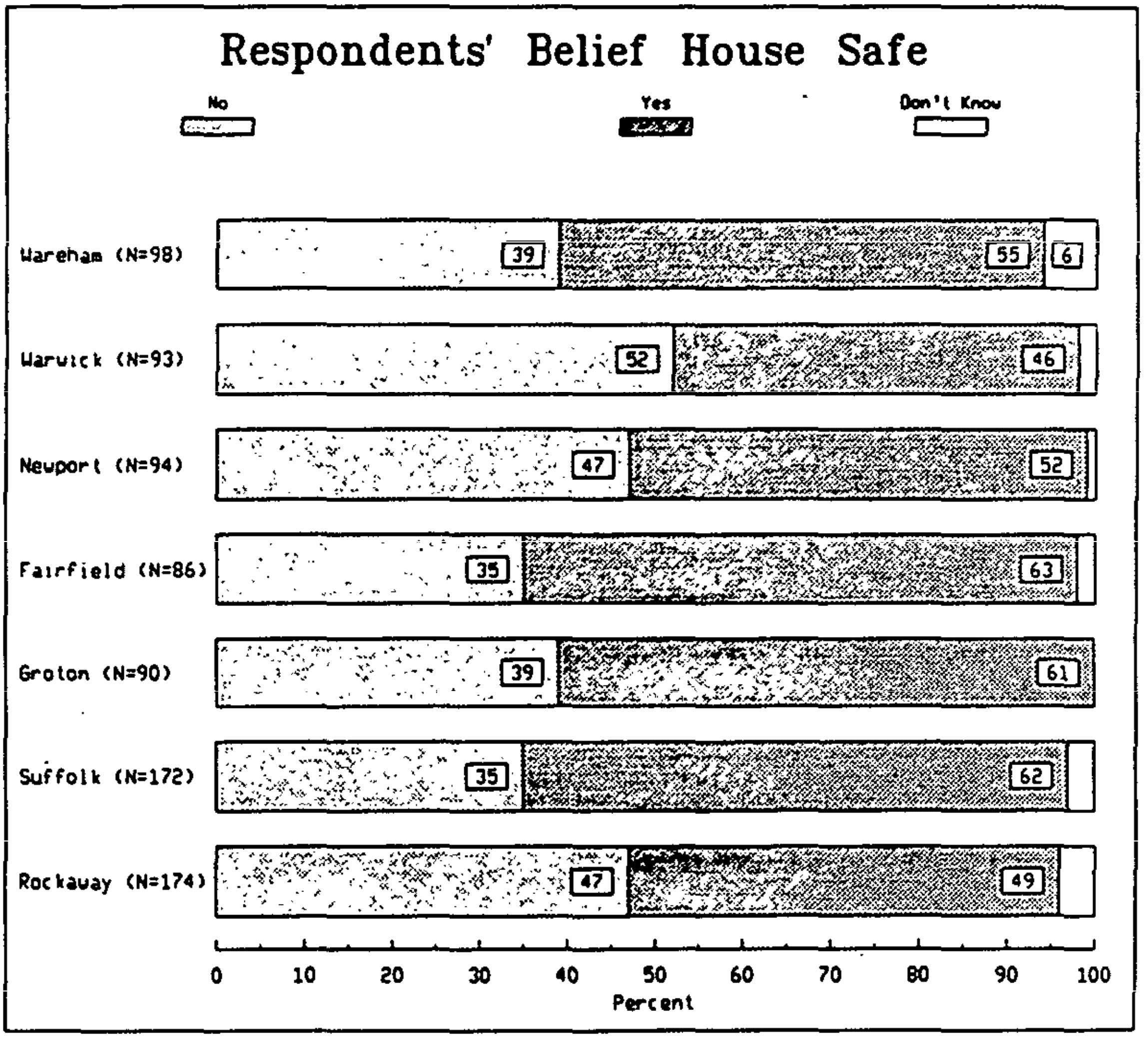

Respondents' Belief House Safe
No
Yes
Don't Know
Wareham (N=98)
39
55
6
Warwick (N=93)
52
46
Newport (N=94)
47
52
Fairfield (N=86)
35
63
Groton (N=90)
39
61
Suffolk (N=172)
35
62
Rockaway (N=174)
47
49
0 10 20 30 40 50 60 70 80 90 100
Percent

FIG. 15

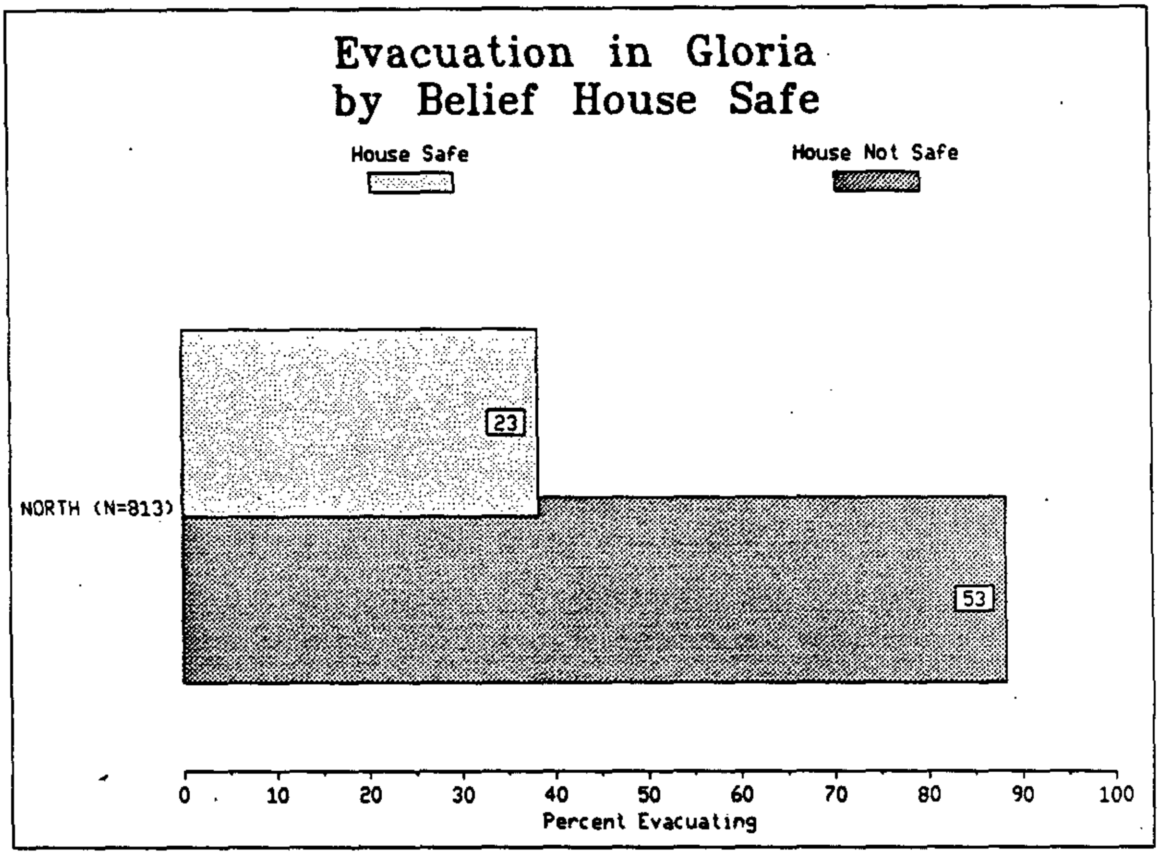
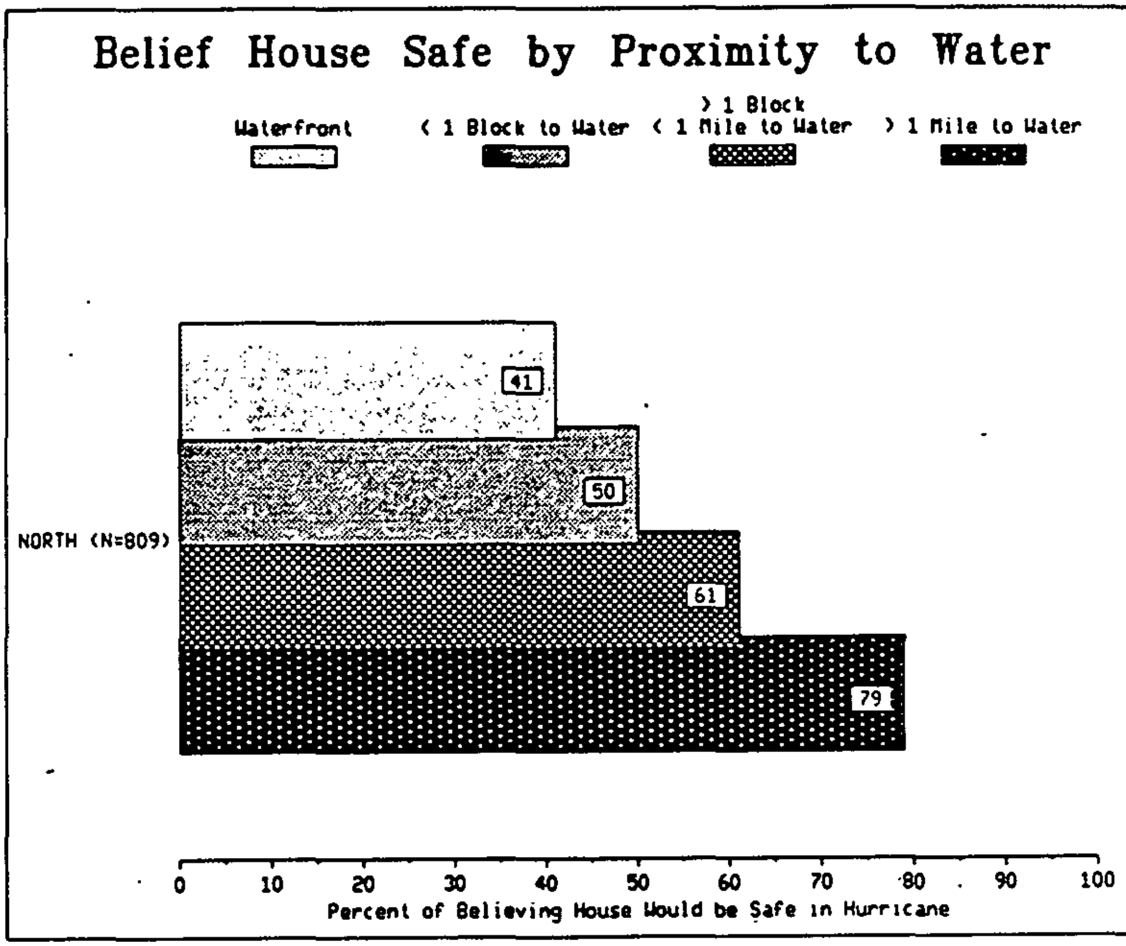

Evacuation in Gloria
by Belief House Safe
House Safe
House Not Safe
23
NORTH (N=813)
53
0
10
20
30
40
50
60
70
80
90
100
Percent Evacuating

FIG. 16



Belief House Safe by Proximity to Water
Waterfront
< 1 Block to Water
> 1 Block < 1 Mile to Water
> 1 Mile to Water
NORTH (N=809)
41
50
61
79
0
10
20
30
40
50
60
70
80
90
100
Percent of Believing House Would be Safe in Hurricane

FIG. 17

Reasons Given for Not Evacuating

The most common reason given for not evacuating in Gloria was that respondents felt safe staying where they were -- either they didn't believe the storm was severe enough to threaten their dwelling or the storm wouldn't strike their area (Fig. 18). A variety of other reasons were also volunteered.

Reasons attributing the decision to not evacuate to specific types or sources of information are graphed in Figure 19. As many as 19% (in Denton) said they stayed because officials didn't tell them to leave. Many respondents said they stayed for reasons having nothing to do with safety or information (Fig. 20). In only three survey locations (Rockaway, Denton, and Ocean City, MD) did anyone say they failed to evacuate because they had no transportation. A number in most places, however, said they stayed because they had no place to go.

There are no clear differences in reasons given across the region as a whole to distinguish the area from other locations in other hurricane threats.

Other Predictors and Non-predictors

Housing varied too little to test for response differences in all but two locations. Thirty-nine percent of the Rockaway sample contained high-rise residents, and only 8% of them evacuated, compared to 40% of single-family homes. In the Delaware mainland sample 45% of the dwellings were mobile homes, 75% of which were evacuated, whereas only 35% of other housing was evacuated. The mobile home finding is common, but there has been little comparative evidence elsewhere concerning high-rise dwellings.

Neither income nor age were associated with whether people evacuated. Income is seldom found to predict evacuation in other parts of the nation. Age is usually a factor only in areas where there are a large number of retirees such as south Florida.

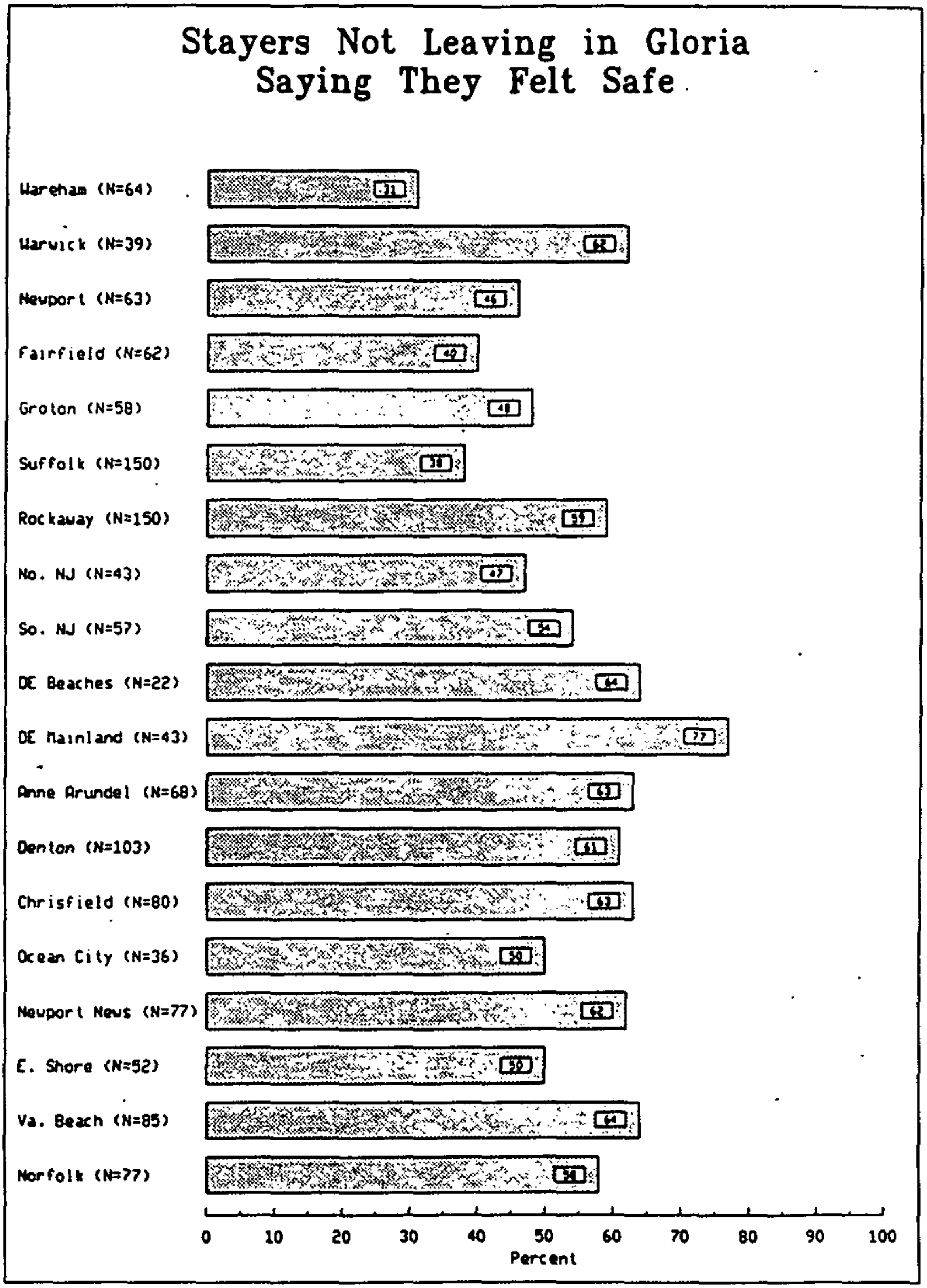

Stayers Not Leaving in Gloria
Saying They Felt Safe
Wareham (N=64)
31
Warwick (N=39)
62
Newport (N=63)
46
Fairfield (N=62)
40
Groton (N=58)
48
Suffolk (N=150)
38
Rockaway (N=150)
59
No. NJ (N=43)
47
So. NJ (N=57)
54
DE Beaches (N=22)
64
DE Mainland (N=43)
77
Anne Arundel (N=68)
63
Denton (N=103)
61
Chrisfield (N=80)
63
Ocean City (N=36)
50
Newport News (N=77)
62
E. Shore (N=52)
50
Va. Beach (N=85)
64
Norfolk (N=77)
58
0
10
20
30
40
50
60
70
80
90
100
Percent

FIG. 18

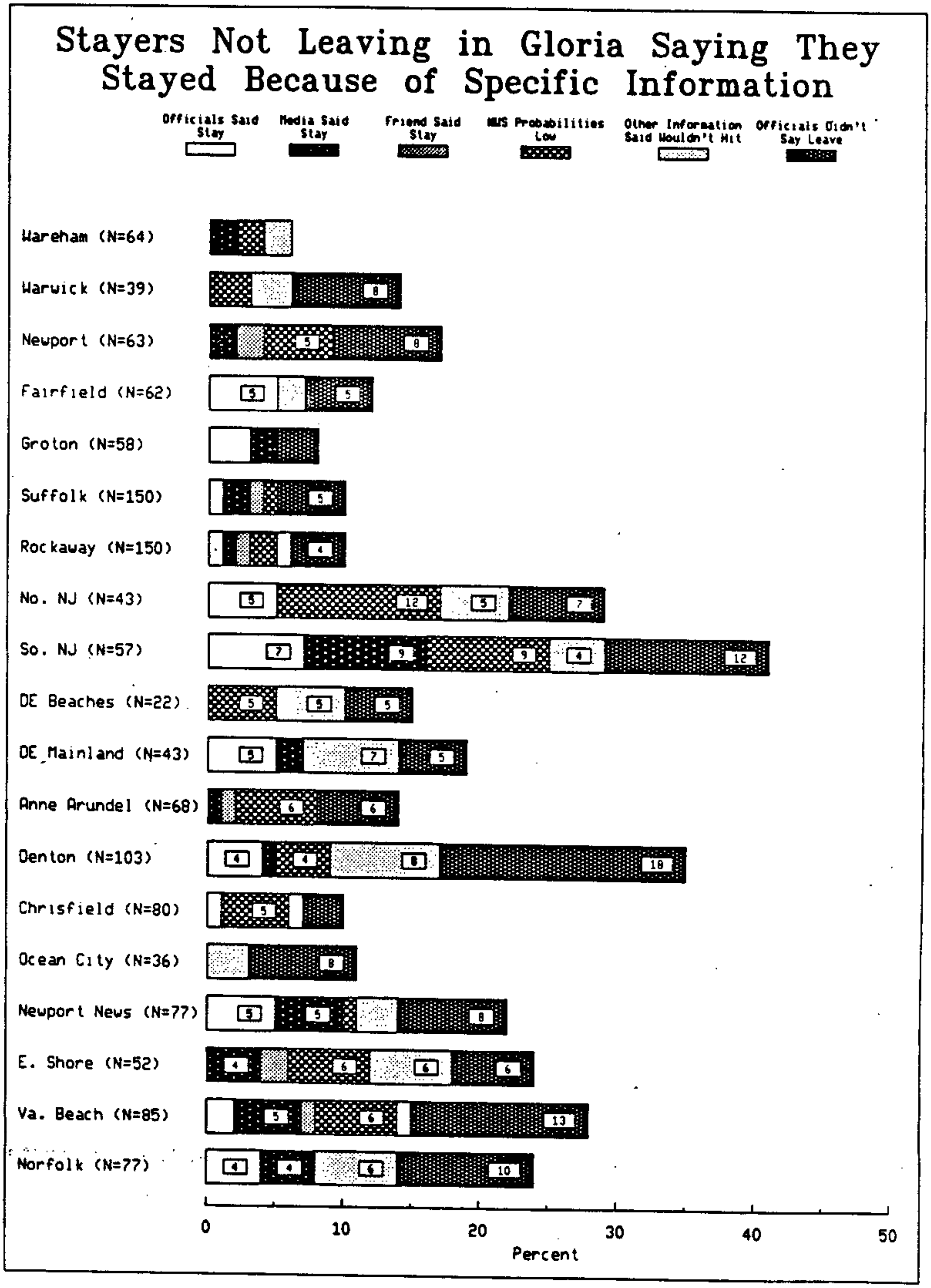

Stayers Not Leaving in Gloria Saying They Stayed Because of Specific Information
Officials Said Stay
Media Said Stay
Friend Said Stay
NWS Probabilities Low
Other Information Said Wouldn't Hit
Officials Didn't Say Leave
Wareham (N=64)
Warwick (N=39)
Newport (N=63)
Fairfield (N=62)
Groton (N=58)
Suffolk (N=150)
Rockaway (N=150)
No. NJ (N=43)
So. NJ (N=57)
DE Beaches (N=22)
DE Mainland (N=43)
Anne Arundel (N=68)
Denton (N=103)
Chrisfield (N=80)
Ocean City (N=36)
Newport News (N=77)
E. Shore (N=52)
Va. Beach (N=85)
Norfolk (N=77)
0
10
20
30
40
50
Percent

FIG. 19

Stayers Not Leaving in Gloria Saying They Stayed for Reasons Other Than Information

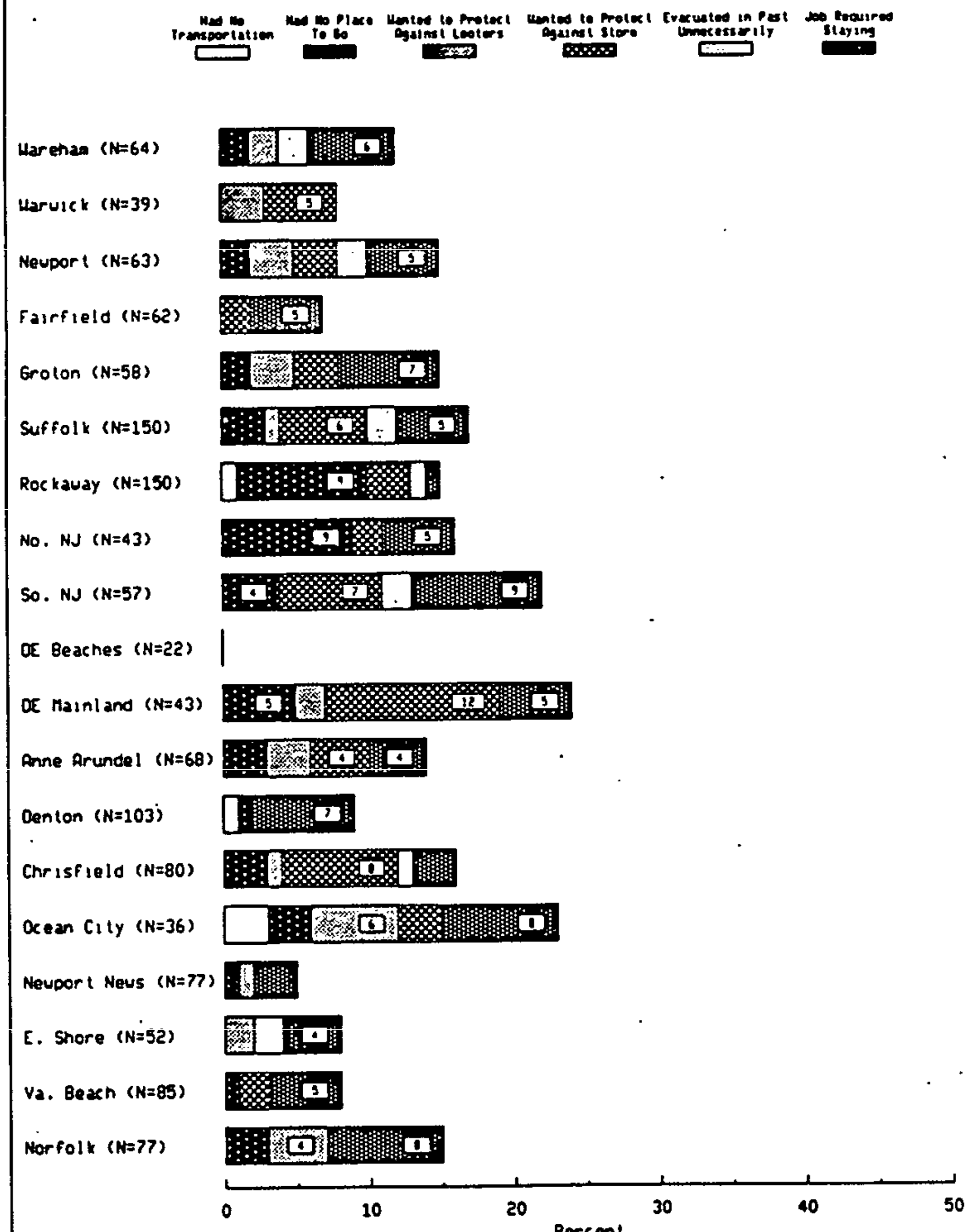


FIG. 20

In the northern area income was not correlated at all with proximity to water, and in the southern area, the association wasn't strong (Figure 21). In neither area was age related to water proximity. Elderly residents were slightly more likely to say their house would be safe in a hurricane than other respondents (Fig. 22).

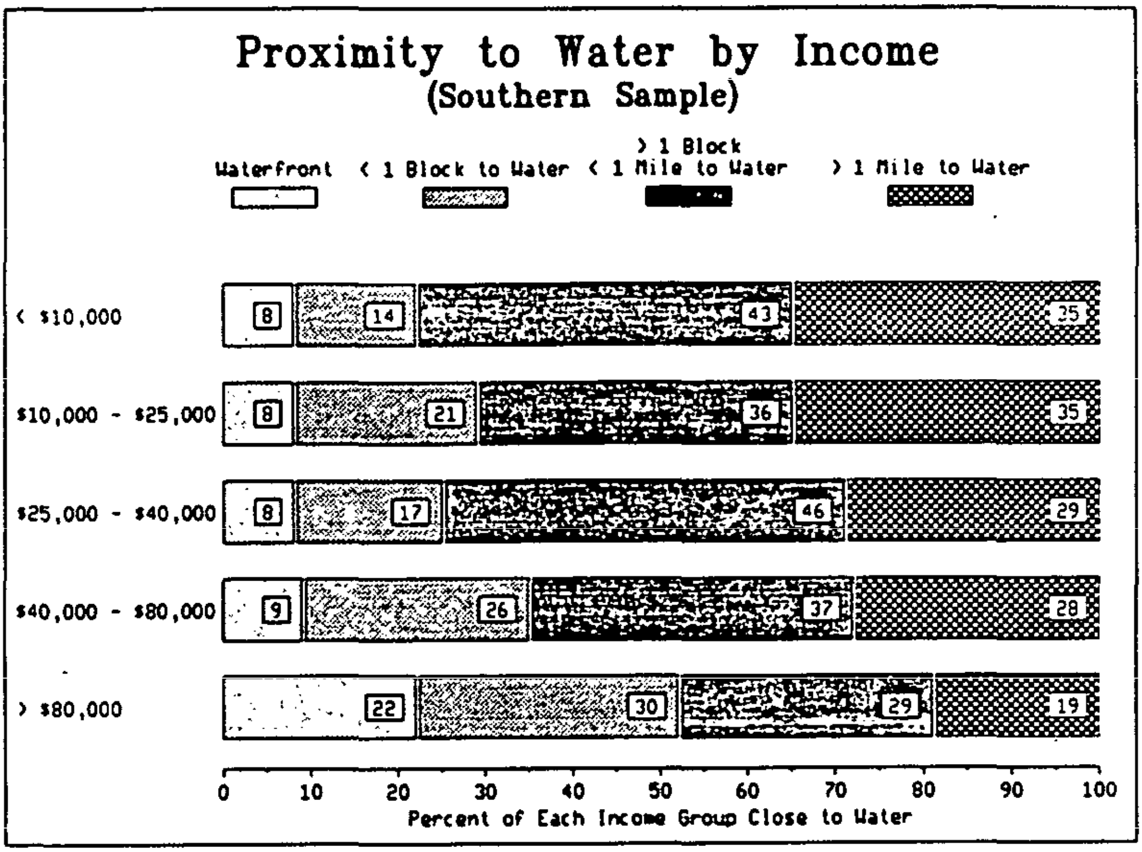

Proximity to Water by Income
(Southern Sample)
Waterfront
< 1 Block to Water
> 1 Block < 1 Mile to Water
> 1 Mile to Water
< $10,000
$10,000 - $25,000
$25,000 - $40,000
$40,000 - $80,000
> $80,000
8
14
43
35
8
21
36
35
8
17
46
29
9
26
37
28
22
30
29
19
0
10
20
30
40
50
60
70
80
90
100
Percent of Each Income Group Close to Water

FIG. 21

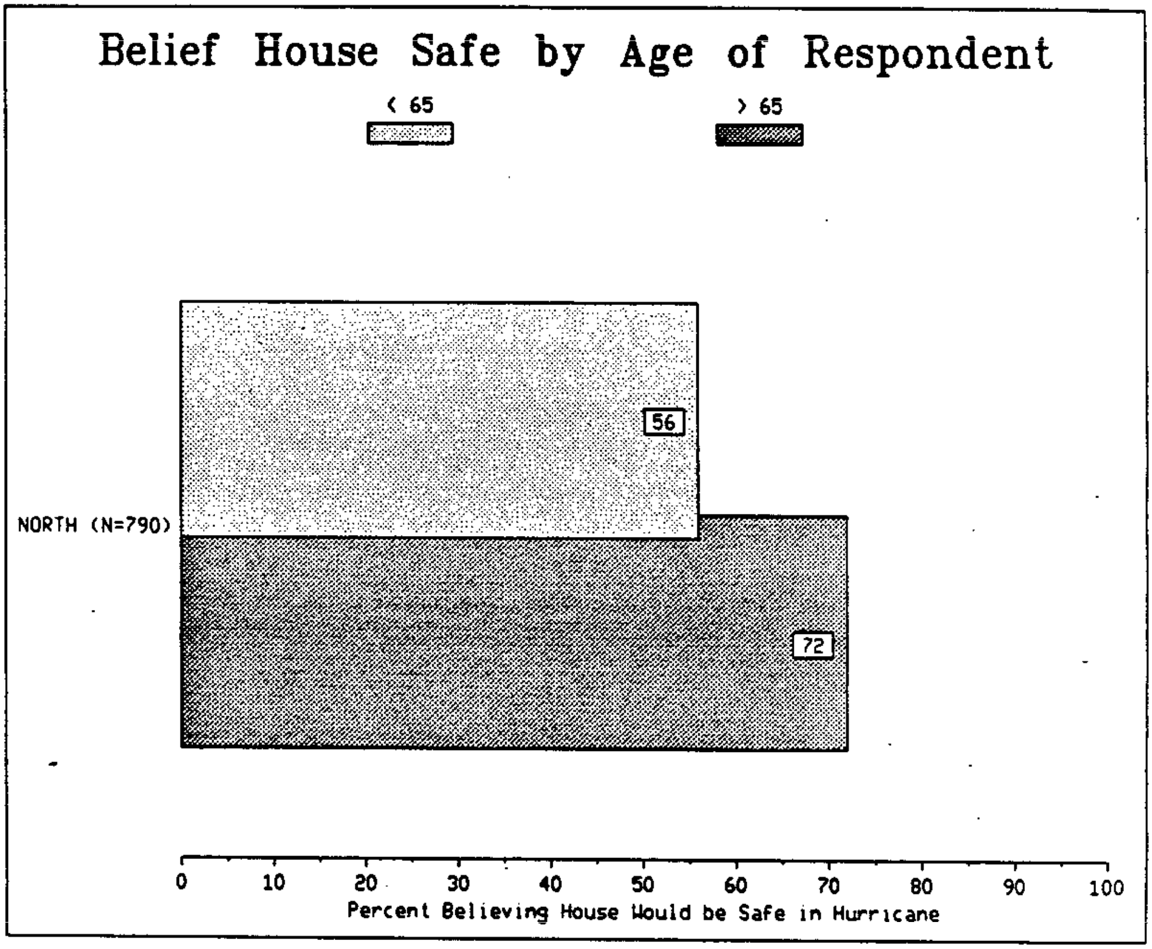

Belief House Safe by Age of Respondent
< 65
> 65
56
NORTH (N=790)
72
0
10
20
30
40
50
60
70
80
90
100
Percent Believing House Would be Safe in Hurricane

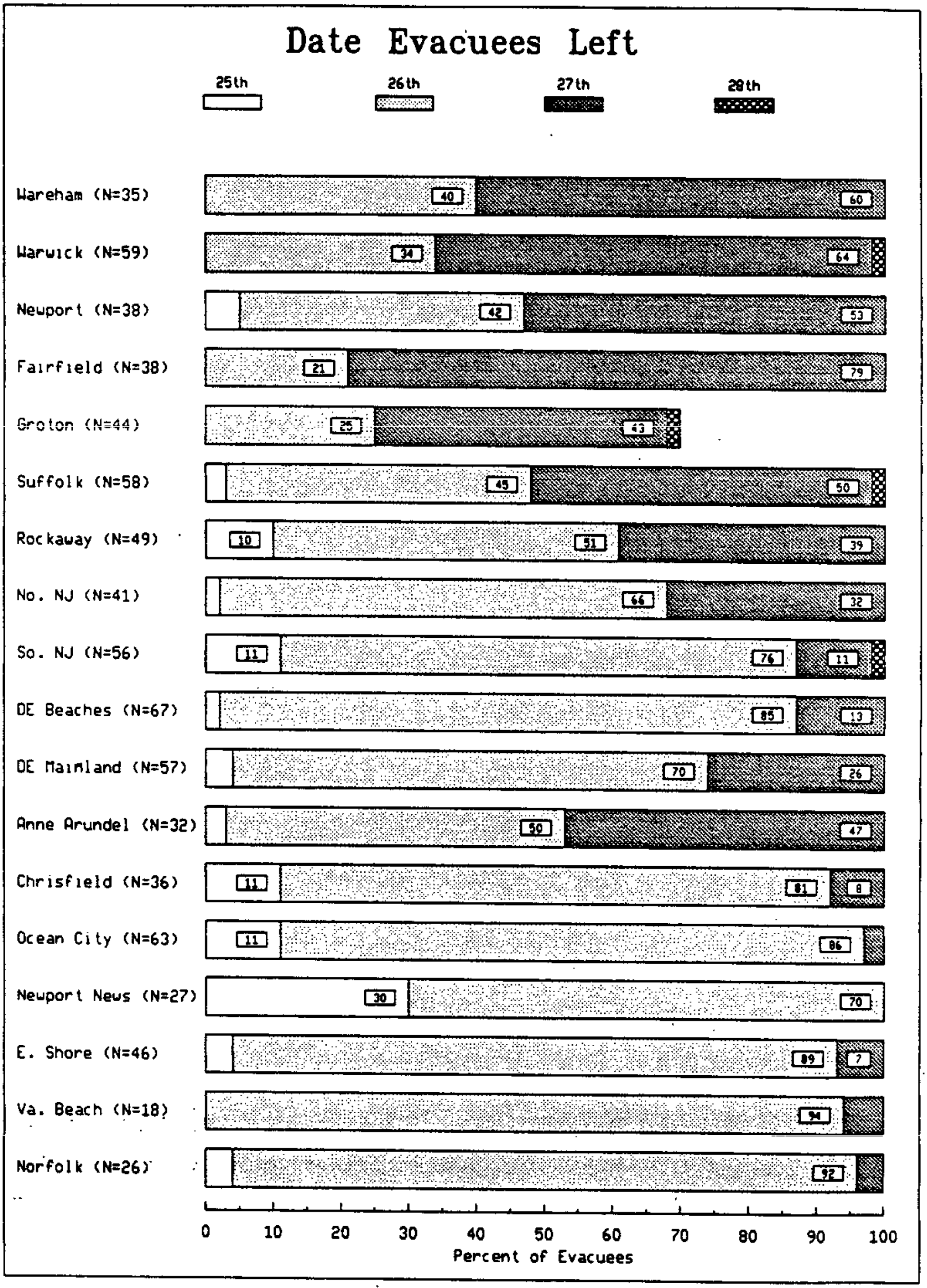
FIG. 22

Evacuation Timing

Evacuation timing is concerned with how many of the eventual evacuees leave at various times after (or before) being told to evacuate or relative to the arrival of a hurricane. Figure 23 shows the date on which Gloria evacuees said they evacuated. Clearly and understandably, people left earlier in the southern area than in the northern. This was undoubtedly a consequence of the fact that the storm threatened southern sites earlier and officials told people earlier to leave.

Evacuees were also asked what time of day they left. Plotting that data yields a cumulative evacuation curve like the ones in Figure 24 for the two Delaware survey locations. In this particular case, such curves could be misleading, however. Respondents are being asked to recall the time of day they did something two years earlier, and recall might not be good enough to place great confidence in such specific information. Even if people could remember accurately, the sample sizes make the exact shape of the plotted curves suspect.

These considerations present no difficulty in deriving planning assumptions for the region, however. Other evidence has already shown that most people didn't evacuate in Gloria without being told to do so by officials. The timing of evacuation notices, therefore, will be the primary determinant of evacuation timing, just as it is in other locations. Just how promptly people will leave after being told can't be generalized from a single evacuation in any case. People will leave as promptly or as leisurely as they believe they must, based upon information available during a particular threat. Planning recommendations, therefore, will contain three different response timing curves, each fitting a set of circumstances which are plausible at each study location.



Date Evacuees Left
25th
26th
27th
28th
Wareham (N=35)
Warwick (N=59)
Newport (N=38)
Fairfield (N=38)
Groton (N=44)
Suffolk (N=58)
Rockaway (N=49)
No. NJ (N=41)
So. NJ (N=56)
DE Beaches (N=67)
DE Mainland (N=57)
Anne Arundel (N=32)
Chrisfield (N=36)
Ocean City (N=63)
Newport News (N=27)
E. Shore (N=46)
Va. Beach (N=18)
Norfolk (N=26)
40
60
34
64
42
53
21
79
25
43
45
50
10
51
39
66
32
11
76
11
85
13
70
26
50
47
11
81
8
11
86
30
70
89
7
94
92
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuees

FIG. 23

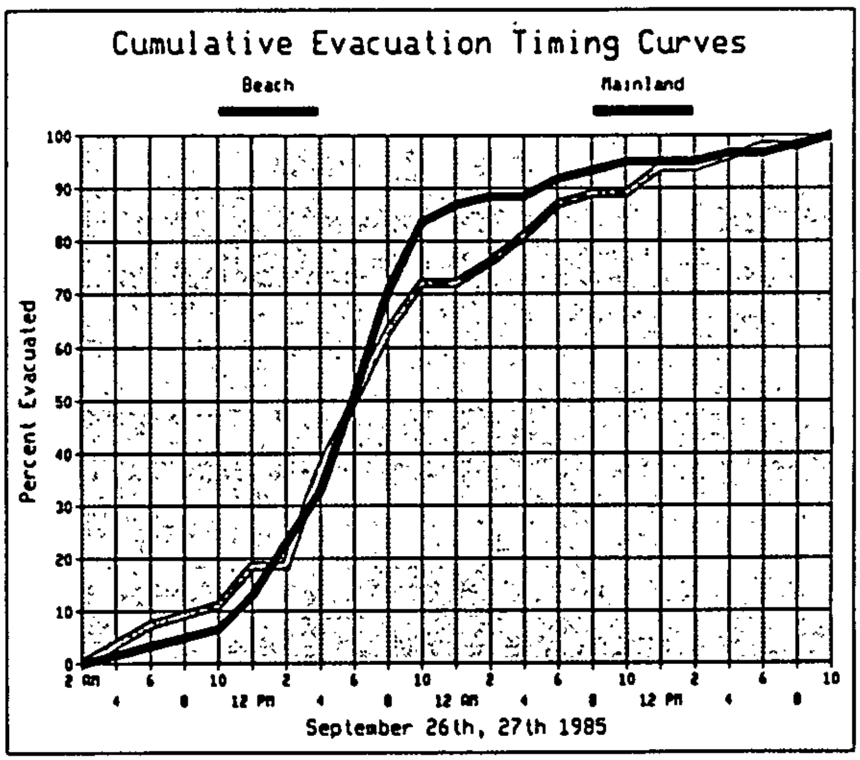

Cumulative Evacuation Timing Curves
Beach
Mainland
Percent Evacuated
100
90
80
70
60
50
40
30
20
10
0
2 AM
4
6
8
10
12 PM
2
4
6
8
10
12 AM
2
4
6
8
10
12 PM
2
4
6
8
10
September 26th, 27th 1985

FIG. 24

Types of Refuge Used

Response in Gloria

Figure 25 indicates the types of refuge used by evacuees in Gloria. Bear in mind that in most of the samples fewer than 50 people evacuated, yielding only marginally reliable data on this variable. (A sample of 50 will yield data accurate within 10 percentage points of the population value 90% of the time.)

In all but five survey sites a fourth or fewer of all evacuees went to public shelters, but there was widespread variation from site to site. Anne Arundel and Newport News had the highest shelter use rates, at 49% and 45% respectively, but both also had relatively few total evacuees (33 and 29). Newport, RI had the lowest use of public shelters, but Warwick, Rockaway, southern New Jersey, and Norfolk also had very low shelter use rates. Very few people evacuating out of their own town went to public shelters, but more did so in the southern sample than in the northern (Figure 26).

The "other" category was large in some locations. The most common of these responses was going to a second home the respondent owned, their place of work, or to a church not being operated as a Red Cross shelter.

(Non)Predictors of Shelter Use

Common predictors of public shelter use were not verified in the Gloria data. It is unclear whether the region is different, Gloria was different, or idiosyncrasies of the data set simply make verification impossible.

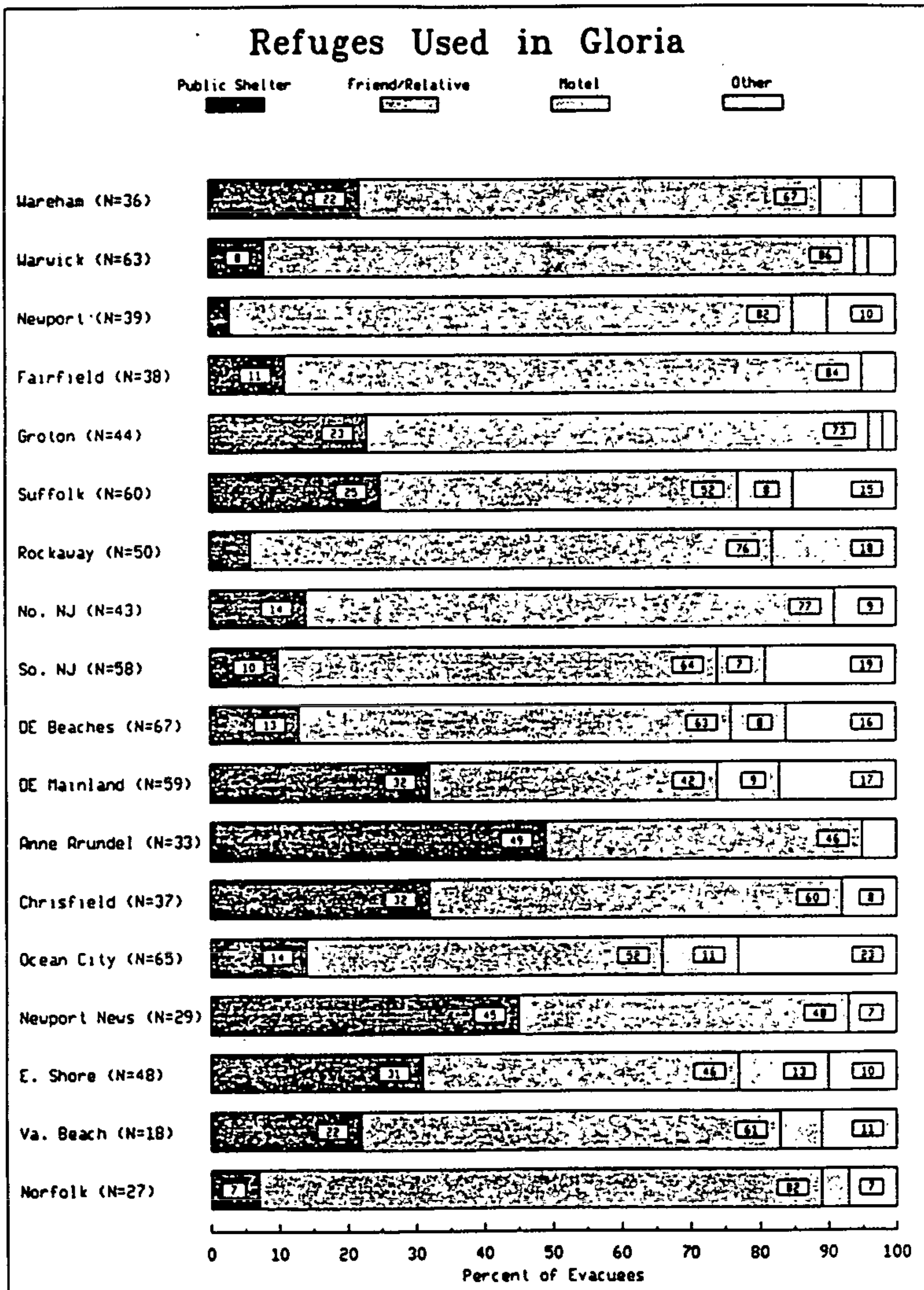

Refuges Used in Gloria
Public Shelter
Friend/Relative
Motel
Other
Wareham (N=36)
Warwick (N=63)
Newport (N=39)
Fairfield (N=38)
Groton (N=44)
Suffolk (N=60)
Rockaway (N=50)
No. NJ (N=43)
So. NJ (N=58)
DE Beaches (N=67)
DE Mainland (N=59)
Anne Arundel (N=33)
Chrisfield (N=37)
Ocean City (N=65)
Newport News (N=29)
E. Shore (N=48)
Va. Beach (N=18)
Norfolk (N=27)
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuees

FIG. 25

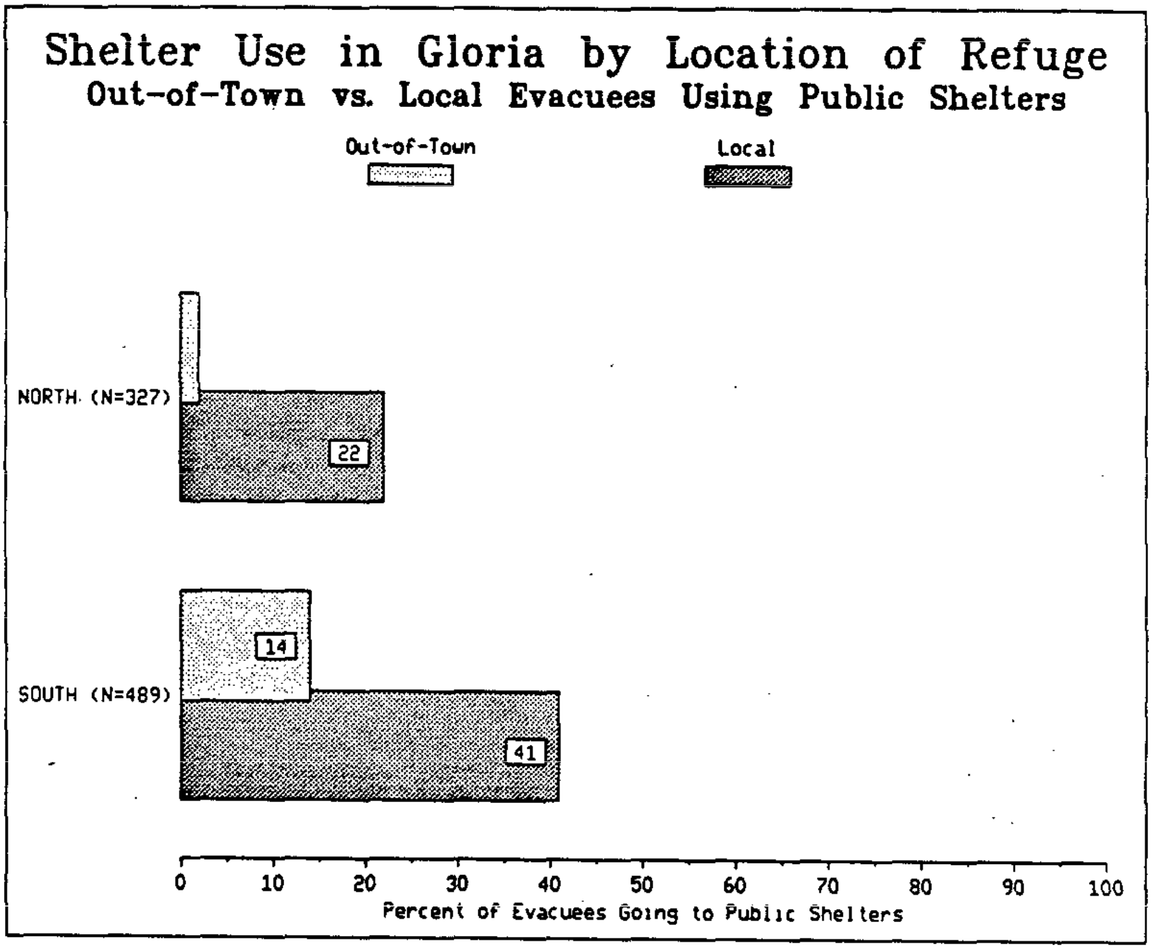

Shelter Use in Gloria by Location of Refuge
Out-of-Town vs. Local Evacuees Using Public Shelters
Out-of-Town
Local
NORTH (N=327)
22
14
SOUTH (N=489)
41
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuees Going to Public Shelters

FIG. 26

For example, income is normally associated with shelter use: low income evacuees are usually more likely to go to public shelters than more affluent evacuees. There is some evidence to support the notion in the Gloria data. Newport News and Chrisfield, with the highest incidence of low income residents in the samples, had two of the highest rates of public shelter use. Anne Arundel, however, with the highest shelter use rate, also had the lowest percentage of surveyed households reporting incomes below $10,000/yr.

Because of the small number of evacuees and even smaller number of public shelter users at each interview location it was not possible to test reliably for associations between income and shelter use in each location. When the samples were aggregated into northern and southern areas to increase sample sizes, no relationship was found between income and shelter use. Aggregating samples, however, can sometimes obscure relationships which exist at lower levels, and that could be occurring in this case. For example, actions by local officials can either encourage or discourage shelter use at the local level. As such actions undoubtedly varied from site to site in Gloria, lumping all the sites together would tend to make it more difficult to detect the effect of other factors such as income. There is also the larger question of whether respondents were candid about their actual incomes and whether the refusal of many people to answer that question might have affected these tests.

Another common predictor of shelter use is hazardousness of one's location. Evacuees from dangerous places such as barrier islands are less likely to use public shelters than evacuees from low-risk areas. Again, there is evidence of this at one scale in the Gloria data: Evacuees from the Delaware beach sample were much less likely to use public shelters than Delaware mainland evacuees. Other beach sample areas such as Ocean City, MD, and the New Jersey samples had some of the lowest shelter use rates.

Sample sizes were too small in individual survey sites to test whether people living farther from water bodies were more likely to use public shelters. When the data was aggregated into northern and southern areas, no relationship was found.

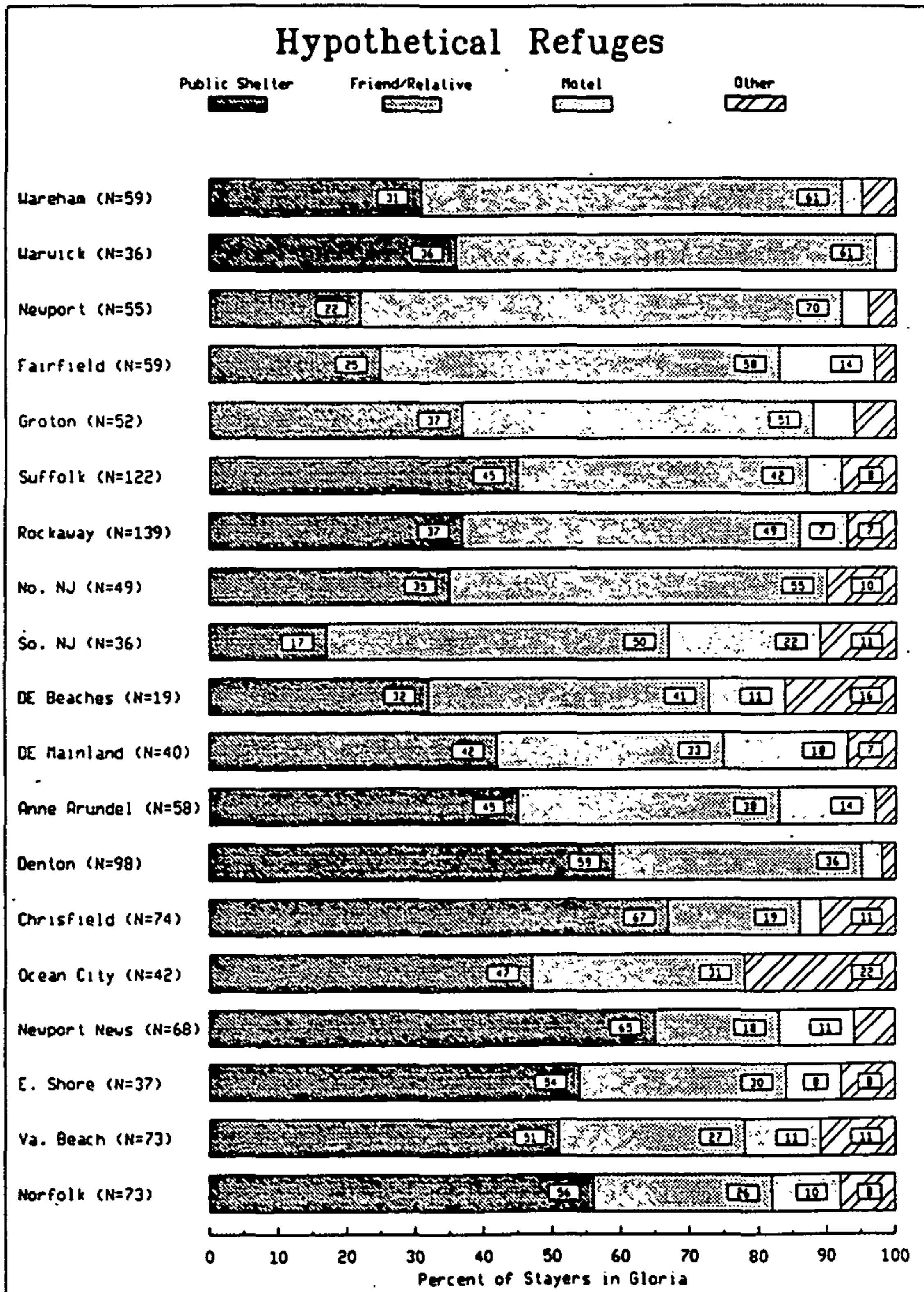
Age is not usually associate with shelter use except in retirement areas, and this proved also to be the case in Gloria.

Hypothetical Refuge Use

Respondents who didn't evacuate in Gloria were asked what sort of refuge they would have sought if they had evacuated. As indicated in Figure 27, hypothetical shelter use was much higher than actual use in most locations. An initial interpretation might be to infer that the people who didn't evacuate in Gloria were actually more prone to use public shelters than those who did evacuate. This relationship between hypothetical and actual shelter use is common, however, and the very same individuals who say they would use public shelters are actually about half as likely to as they themselves believe. Figure 28 compares intended and actual shelter use in a number of locations and storms.

In some surveys people who said they would use public shelters were then asked whether they had friends or relatives in safe locations with whom they could stay if necessary. Most answered affirmatively. Those were then asked whether they might not actually stay with those friends and relatives rather than going to a public shelter. Again, most answered affirmatively, indicating the tenuousness and instability of the hypothetical response.

One reason that actual shelter use tends to be lower than hypothetical is that during hurricane threats, people tend to contact one another, with residents in safe locations often inviting and even urging friends and relatives to come to their houses. Thus options become available that might not have been assumed during a



Hypothetical Refuges
Public Shelter
Friend/Relative
Motel
Other
Wareham (N=59)
Warwick (N=36)
Newport (N=55)
Fairfield (N=59)
Groton (N=52)
Suffolk (N=122)
Rockaway (N=139)
No. NJ (N=49)
So. NJ (N=36)
DE Beaches (N=19)
DE Mainland (N=40)
Anne Arundel (N=58)
Denton (N=98)
Chrisfield (N=74)
Ocean City (N=42)
Newport News (N=68)
E. Shore (N=37)
Va. Beach (N=73)
Norfolk (N=73)
0
10
20
30
40
50
60
70
80
90
100
Percent of Stayers in Gloria

FIG. 27

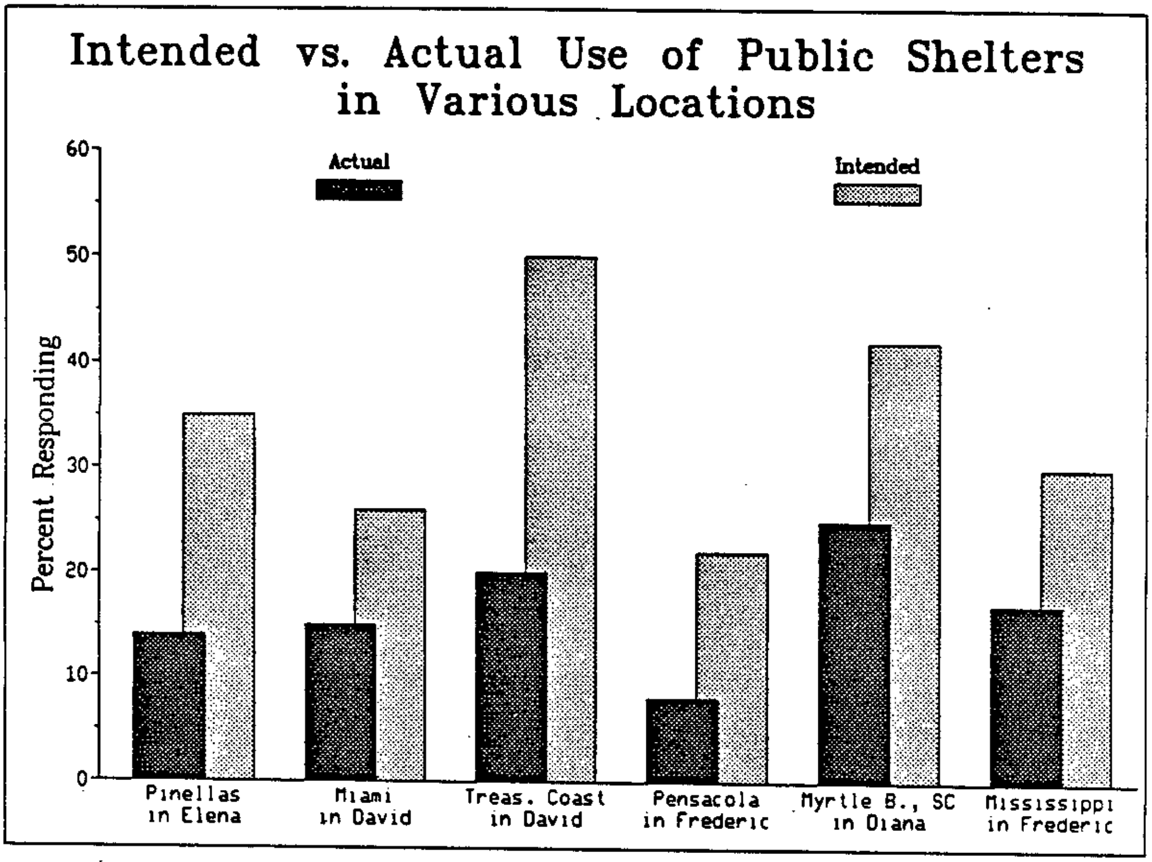

Intended vs. Actual Use of Public Shelters in Various Locations
Actual
Intended
Percent Responding
60
50
40
30
20
10
0
Pinellas in Elena
Miami in David
Treas. Coast in David
Pensacola in Frederic
Myrtle B., SC in Diana
Mississippi in Frederic

FIG. 28

hypothetical interview. It is also likely that as evacuation nears, people consider the pro's and con's of public shelters more carefully, with many deciding in retrospect that public shelter conditions are not so attractive after all.

Although hypothetical shelter use figures are not reliable in the absolute sense, they do have some validity in a relative sense. That is, if more people in one location say they would use public shelters than people in a second location, more of them probably will actually use public shelters in an evacuation, although the hypothetical numbers from both groups are inflated. More people in the southern area sample said they would use public shelters than in the northern sample, for example. This also appeared true, but less definitely, in the actual response data.

It's interesting that the income vs. shelter use relationship discussed earlier and not verified in Gloria is clearly present with hypothetical shelter use data (Figure 29). This gives a bit more reason for applying the generalization when deriving planning assumptions for the region.

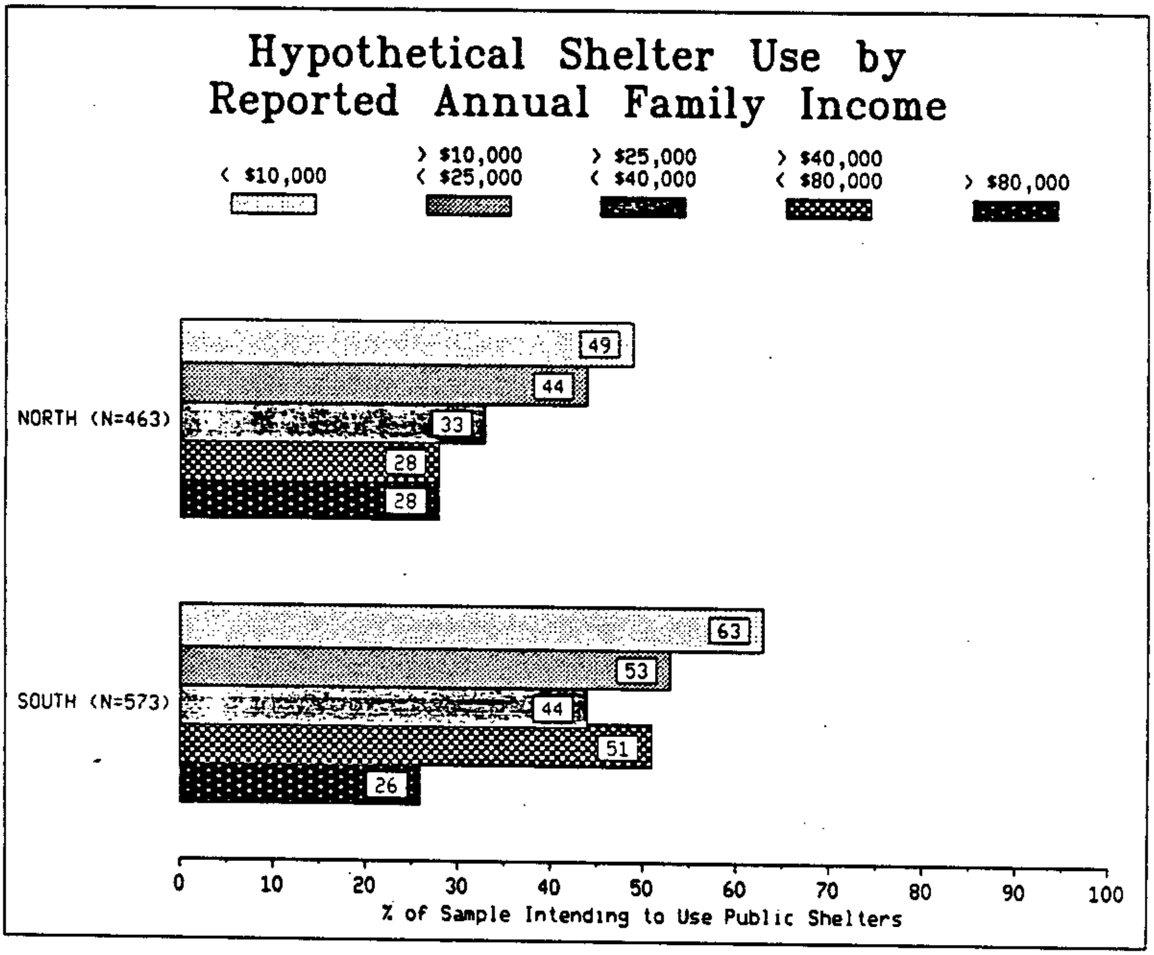

Hypothetical Shelter Use by
Reported Annual Family Income
< $10,000
> $10,000
< $25,000
> $25,000
< $40,000
> $40,000
< $80,000
> $80,000
NORTH (N=463)
49
44
33
28
28
SOUTH (N=573)
63
53
44
51
26
0
10
20
30
40
50
60
70
80
90
100
% of Sample Intending to Use Public Shelters

FIG. 29

Evacuation Destinations

Response in Gloria

There was much variation from site to site with respect to whether evacuees in Gloria left their local areas (usually meaning towns) or sought refuge nearby (Figure 30). Only 7% of the evacuees in Newport News left their local area, compared to 88% in the southern New Jersey area. In half the locations more than 50% of the evacuees went out-of-town.

Figure 31 suggests, though, that most evacuees didn't go very far, even if it was *out-of-town. In 13 of 18 sites more* than half the evacuees said they reached their destination in 30 minutes or less. In the New England states between 83% and 100% of the evacuees took less than 30 minutes.

It was noted previously that very few of the people going out of their local area went to public shelters, and that is common throughout the Gulf and Atlantic coasts. In most locations people in the highest risk locations (barrier islands primarily) are more likely to go out-of-town than evacuees from lower-risk areas. The proximity-to-water test tends to verify that generalization for Gloria in the southern area but not in the northern area (Fig. 32). Proximity to water, however, is not a good surrogate for hazardousness in all locations or when comparing one site to another. When simply looking at interview sites consisting primarily of beach areas (Delaware beaches, southern New Jersey, Ocean City, MD, etc.), it appears that those locations had substantially more evacuees leaving the local area and taking more than 30 minutes to reach their destinations than did most other sites.

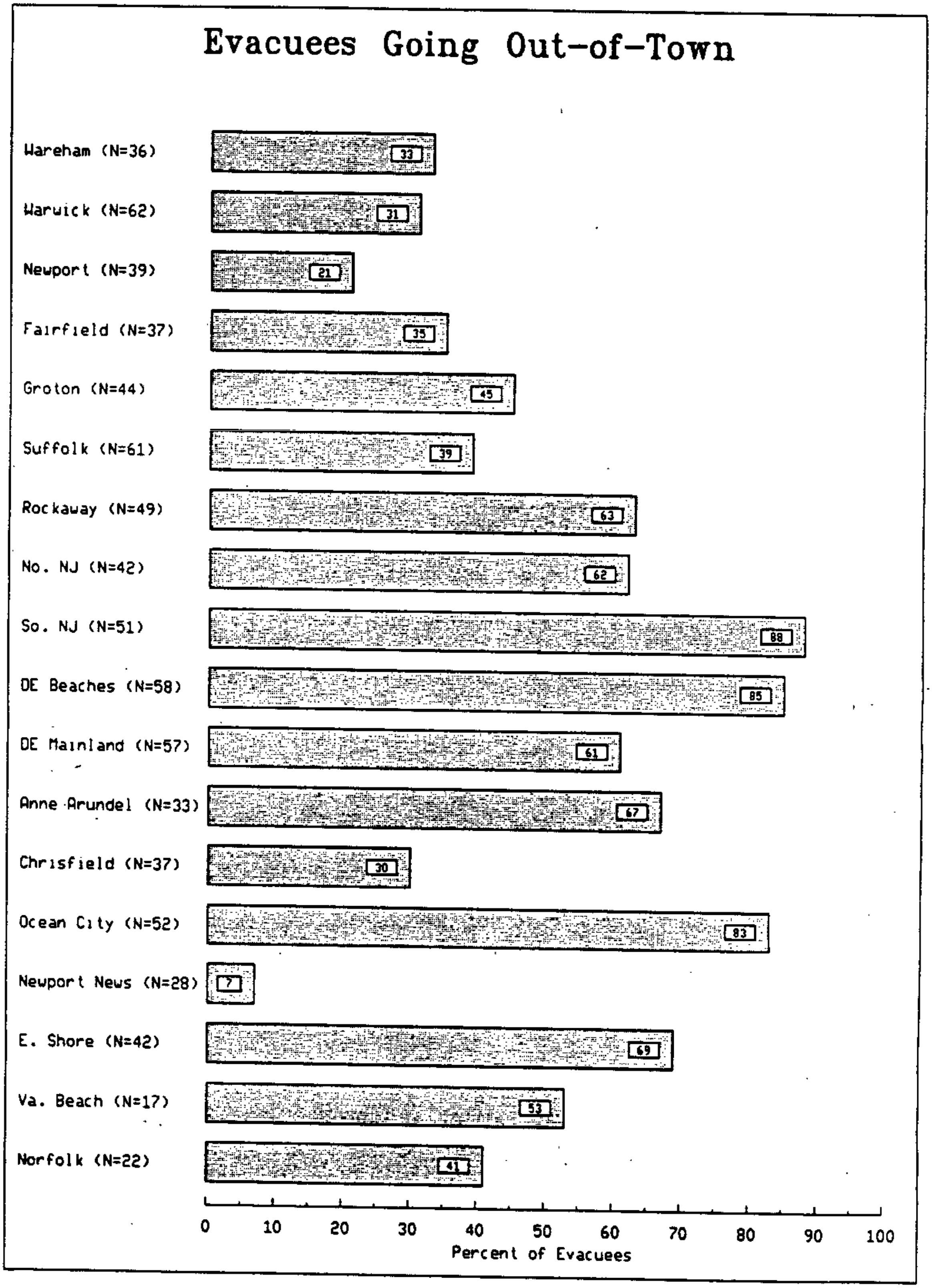

Evacuees Going Out-of-Town
Wareham (N=36)
33
Warwick (N=62)
31
Newport (N=39)
21
Fairfield (N=37)
35
Groton (N=44)
45
Suffolk (N=61)
39
Rockaway (N=49)
63
No. NJ (N=42)
62
So. NJ (N=51)
88
DE Beaches (N=58)
85
DE Mainland (N=57)
61
Anne Arundel (N=33)
67
Chrisfield (N=37)
30
Ocean City (N=52)
83
Newport News (N=28)
7
E. Shore (N=42)
69
Va. Beach (N=17)
53
Norfolk (N=22)
41
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuees

FIG. 30

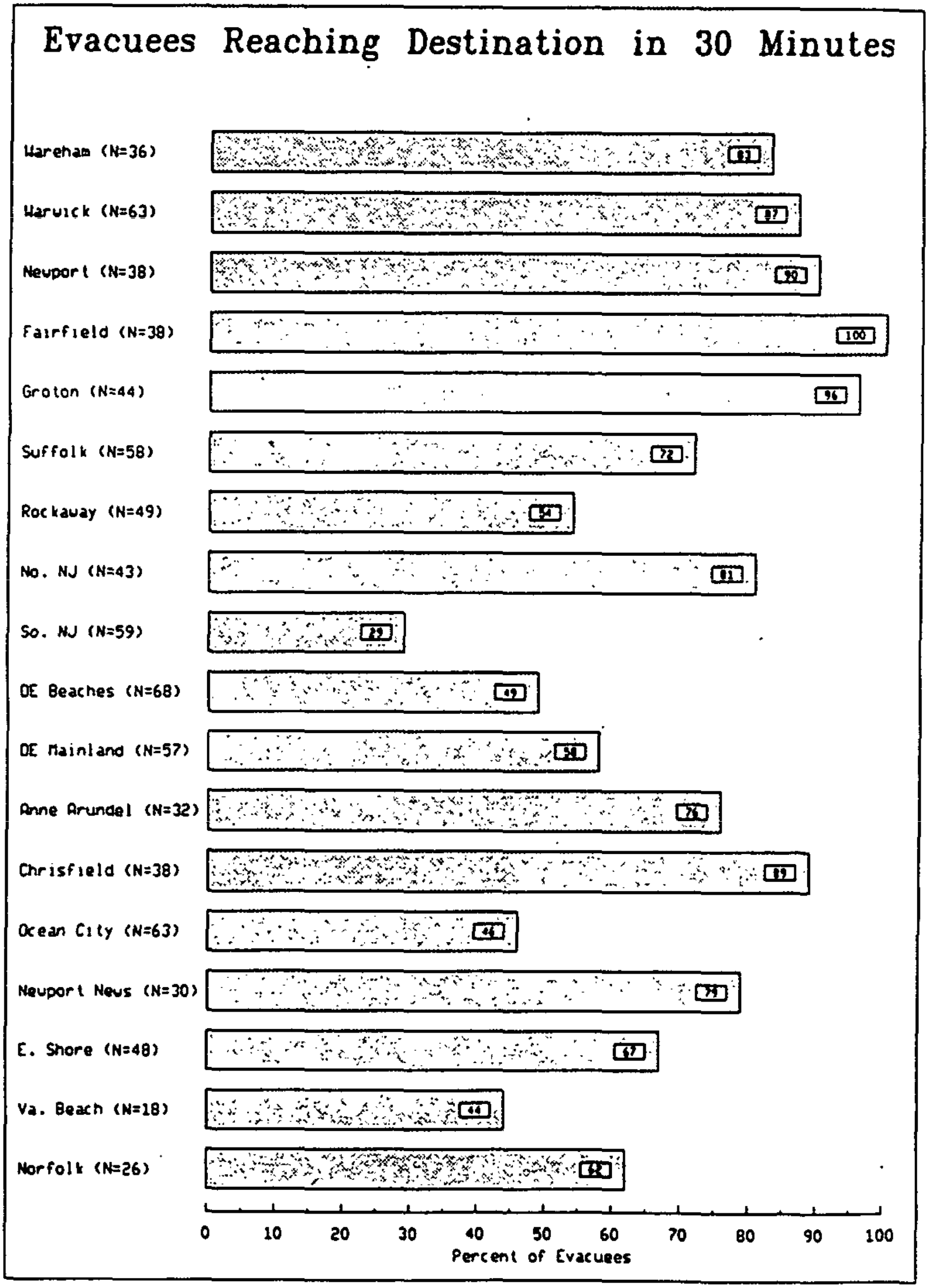

Evacuees Reaching Destination in 30 Minutes
Wareham (N=36)
Warwick (N=63)
Newport (N=38)
Fairfield (N=38)
Groton (N=44)
Suffolk (N=58)
Rockaway (N=49)
No. NJ (N=43)
So. NJ (N=59)
DE Beaches (N=68)
DE Mainland (N=57)
Anne Arundel (N=32)
Chrisfield (N=38)
Ocean City (N=63)
Newport News (N=30)
E. Shore (N=48)
Va. Beach (N=18)
Norfolk (N=26)
83
87
90
100
96
72
54
81
29
49
58
76
89
46
79
67
44
62
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuees

FIG. 31

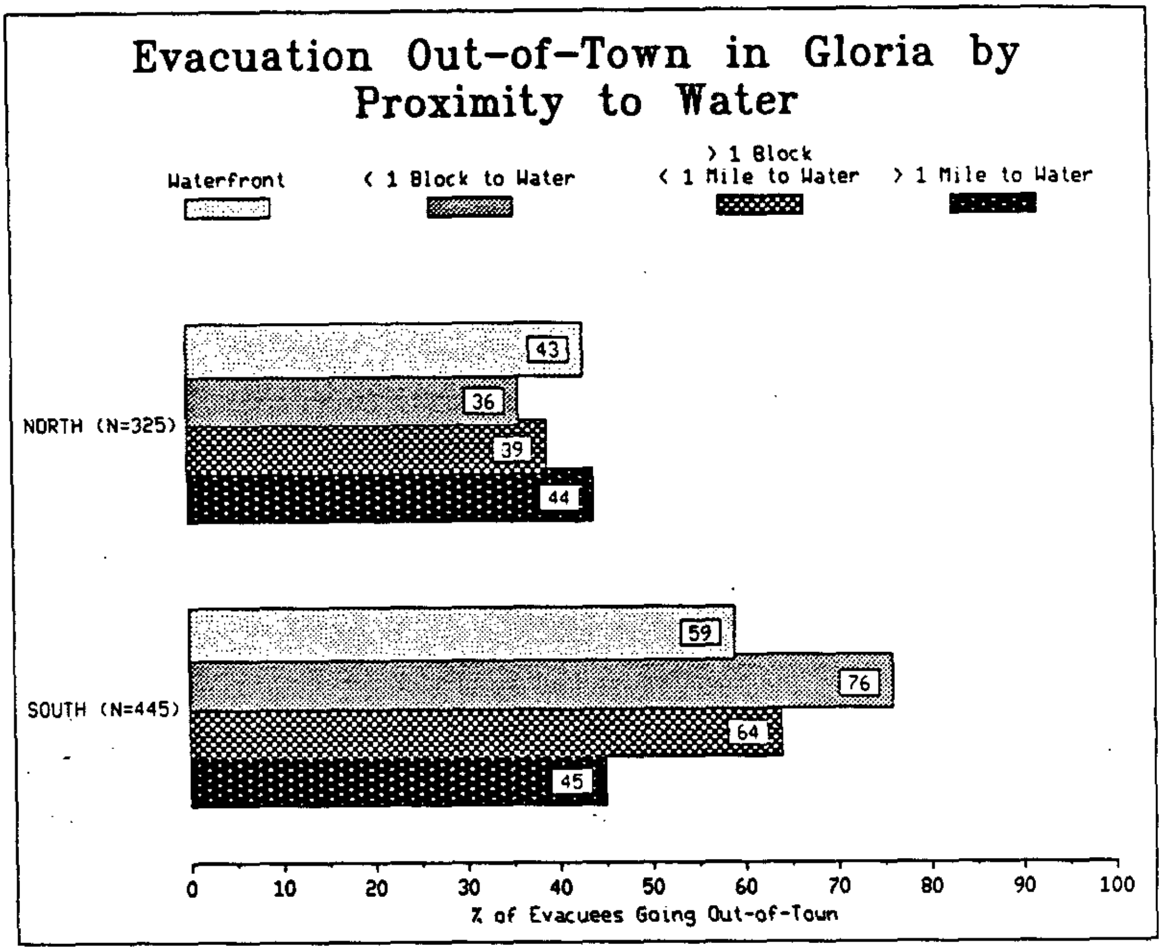

Evacuation Out-of-Town in Gloria by Proximity to Water
Waterfront
< 1 Block to Water
> 1 Block < 1 Mile to Water
> 1 Mile to Water
NORTH (N=325)
43
36
39
44
SOUTH (N=445)
59
76
64
45
0
10
20
30
40
50
60
70
80
90
100
% of Evacuees Going Out-of-Town

FIG. 32

Income can also be a clue to whether evacuees will leave their local area. This probably results from the fact that people with higher incomes are more likely to live near the beach, they are less likely to use public shelters, and they can more easily afford motels. In the Gloria data there was no income vs. out-of-town evacuation relationship in the southern sample, but there was in the northern area (Fig. 33).

Hypothetical Responses

In the northern area people who didn't evacuate in Gloria were asked where they thought they would have gone if they had evacuated. The results were fairly consistent with actual response data for the sites (Fig. 34). Higher income respondents were somewhat more likely to say they would leave the local area (Fig. 35).

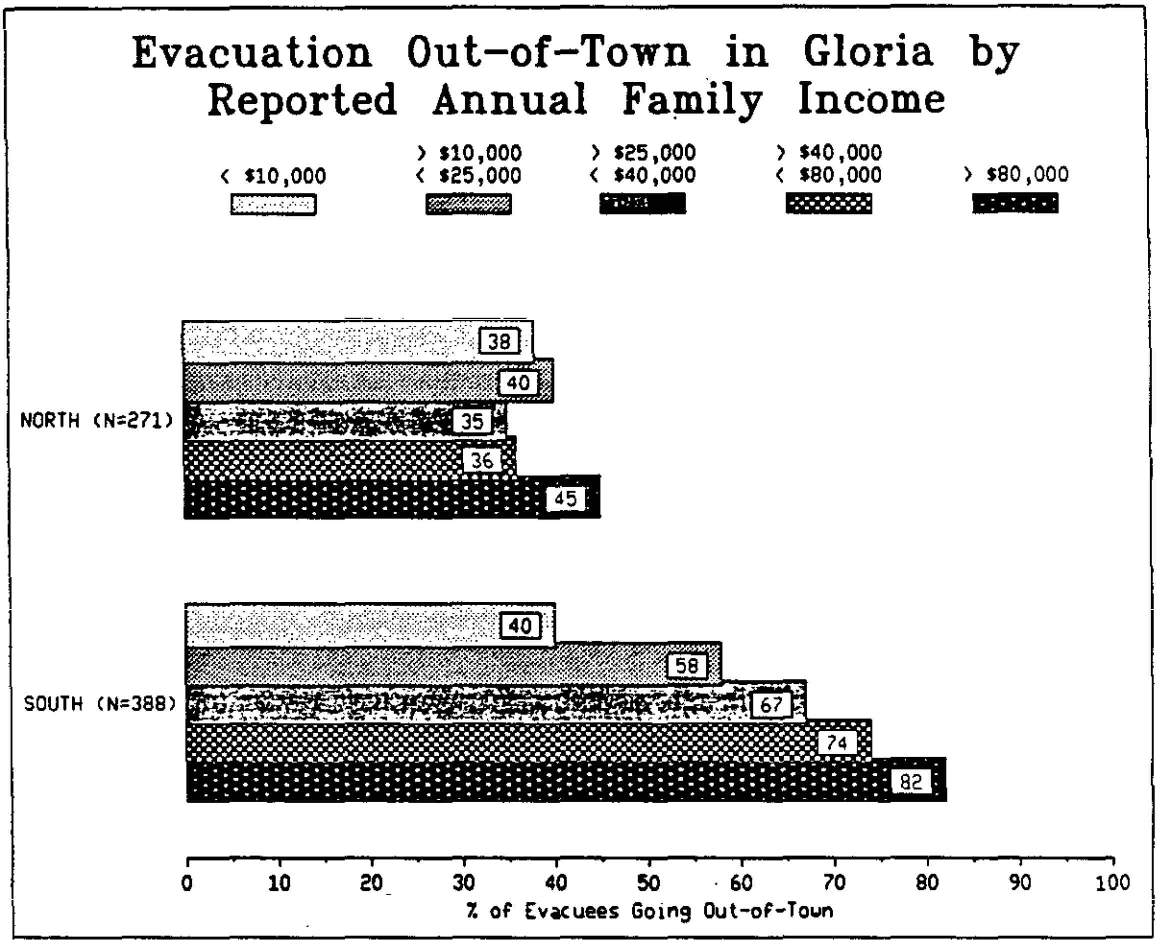

Evacuation Out-of-Town in Gloria by Reported Annual Family Income
< $10,000
> $10,000 < $25,000
> $25,000 < $40,000
> $40,000 < $80,000
> $80,000
NORTH (N=271)
38
40
35
36
45
SOUTH (N=388)
40
58
67
74
82
0
10
20
30
40
50
60
70
80
90
100
% of Evacuees Going Out-of-Town

FIG. 33

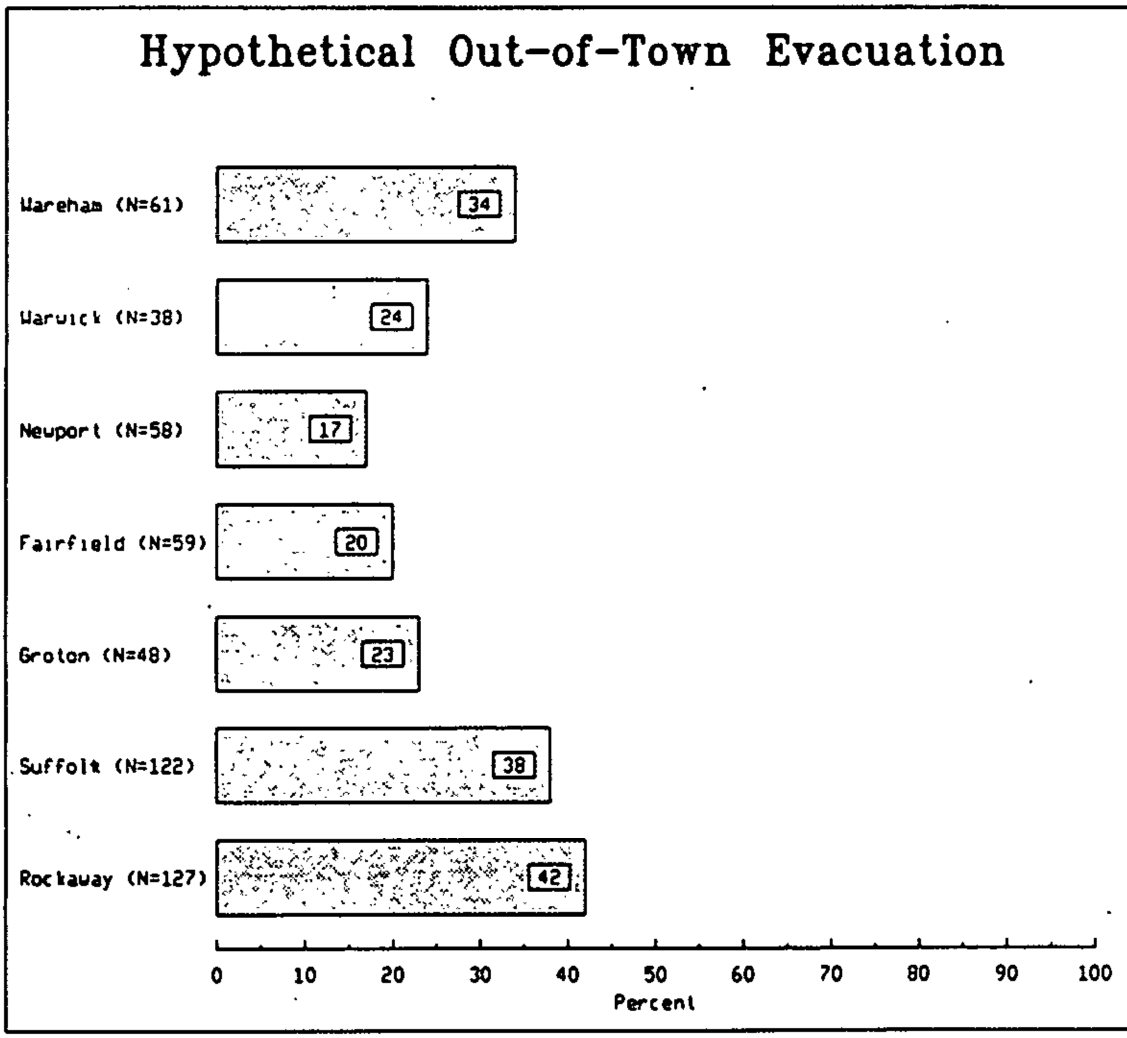

Hypothetical Out-of-Town Evacuation
Wareham (N=61)
34
Warwick (N=38)
24
Newport (N=58)
17
Fairfield (N=59)
20
Groton (N=48)
23
Suffolk (N=122)
38
Rockaway (N=127)
42
0
10
20
30
40
50
60
70
80
90
100
Percent

FIG. 34

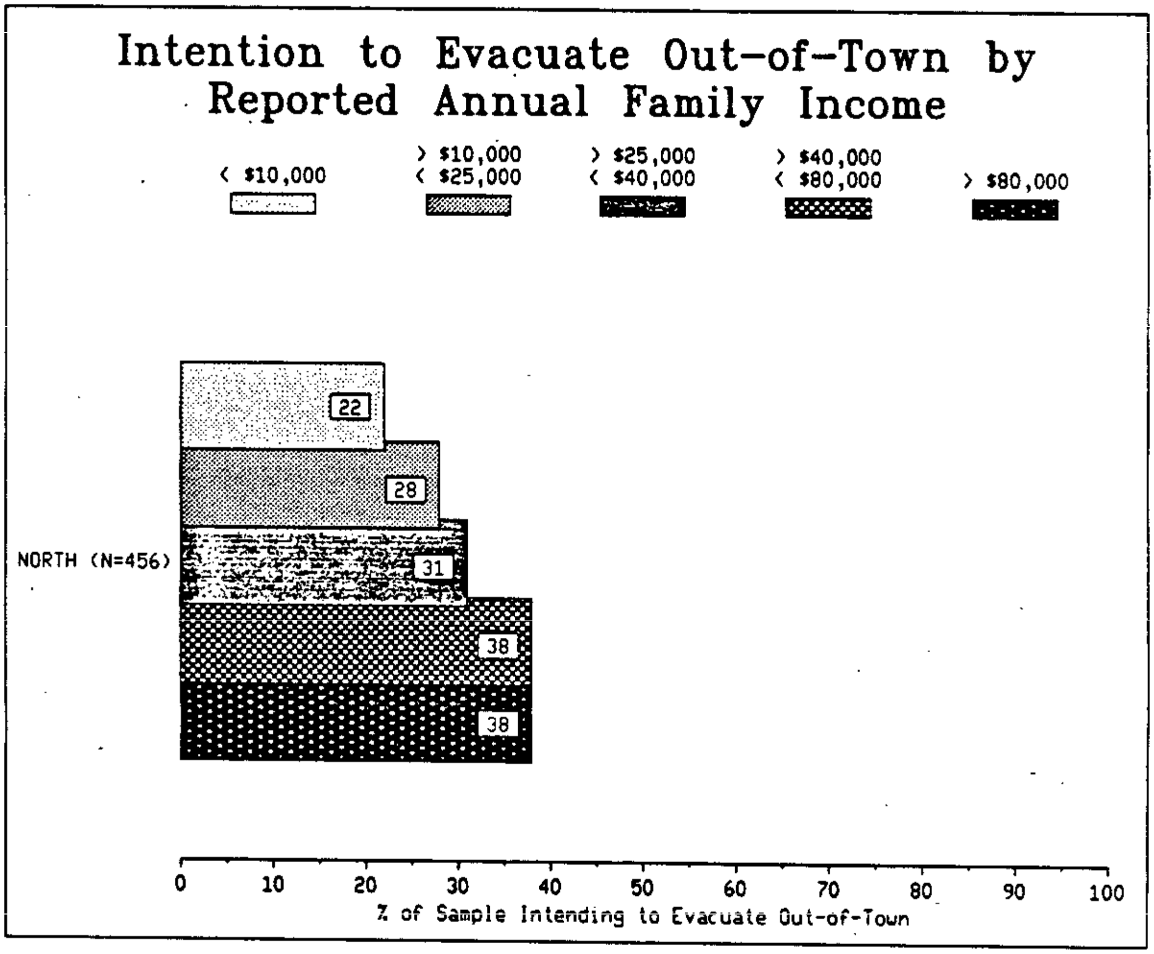

Intention to Evacuate Out-of-Town by Reported Annual Family Income
< $10,000
> $10,000 < $25,000
> $25,000 < $40,000
> $40,000 < $80,000
> $80,000
22
28
31
38
38
NORTH (N=456)
0
10
20
30
40
50
60
70
80
90
100
% of Sample Intending to Evacuate Out-of-Town

FIG. 35

Vehicle Use

Household Transportation

The great majority of evacuees in Gloria used only one vehicle, although some used more (Figure 36). That is almost always the case in hurricane evacuations. Figure 37 shows two additional variables: the percentage of available vehicles actually used by evacuating households and the average number of vehicles used per evacuating household. The average ranged from 1.0 to 1.5. In most cases between 65% and 75% of the vehicles available to households are actually used in evacuating. Fourteen of eighteen Gloria sites were within one percentage point of that range. The Delaware beach sample was abnormally high, and Virginia Beach and Anne Arundel were unusually low. Not all vehicles are used in evacuations because families want to avoid separating any more than necessary.

Public Transportation

In the northern area evacuees were asked what sort of transportation they used (Fig. 38). Almost everyone said they left in their own vehicle. Only in Rockaway did anyone mention using public transportation. Northern area respondents not leaving in Gloria were asked whether they had a car available in which to evacuate if they had chosen to (Fig. 39). Only in Rockaway, and to a much lesser degree Newport, did people say no. Recall also that people in only three sites said they didn't leave because of a lack of transportation (Ocean City,

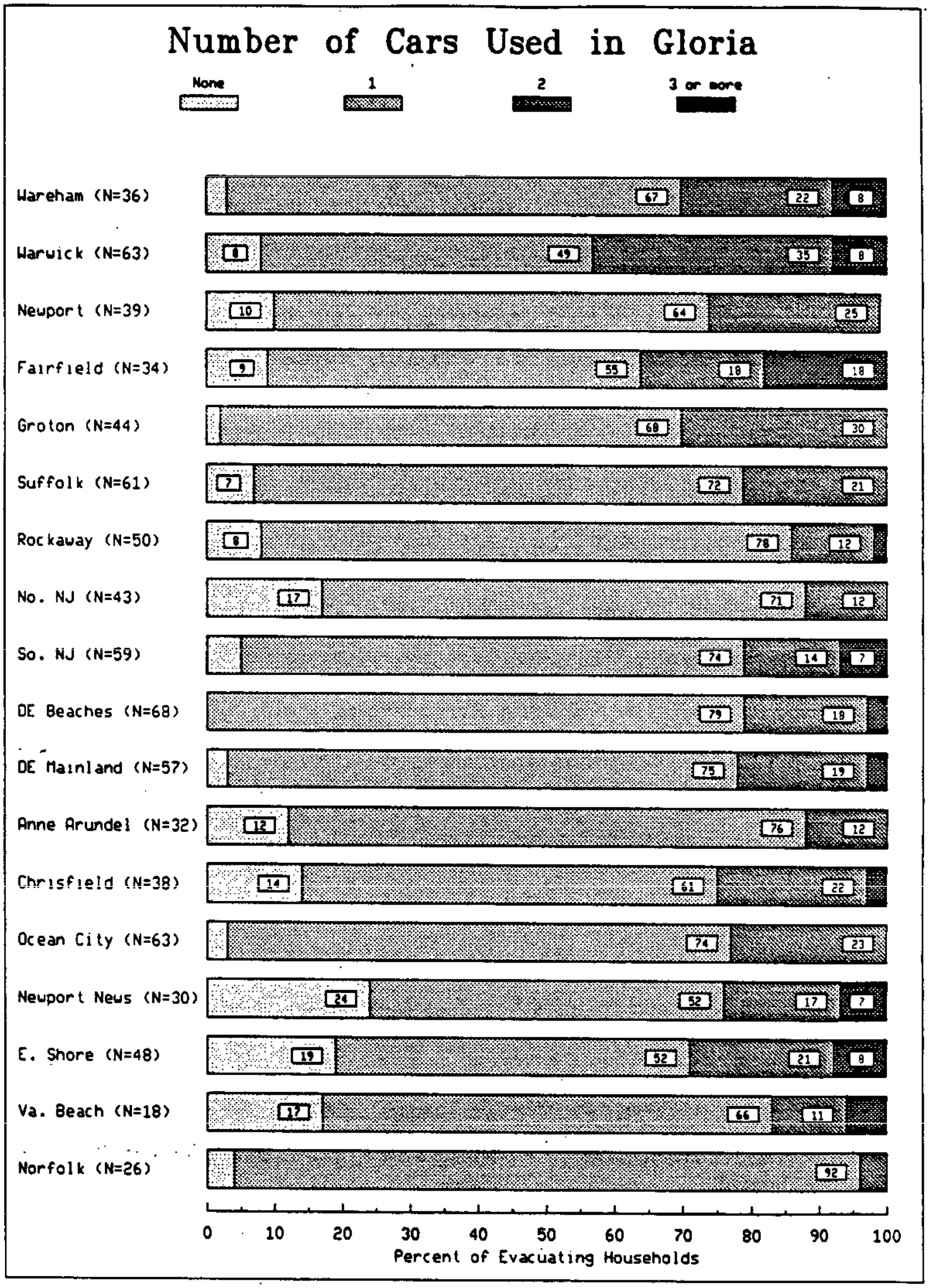

Number of Cars Used in Gloria
None
1
2
3 or more
Wareham (N=36)
Warwick (N=63)
Newport (N=39)
Fairfield (N=34)
Groton (N=44)
Suffolk (N=61)
Rockaway (N=50)
No. NJ (N=43)
So. NJ (N=59)
DE Beaches (N=68)
DE Mainland (N=57)
Anne Arundel (N=32)
Chrisfield (N=38)
Ocean City (N=63)
Newport News (N=30)
E. Shore (N=48)
Va. Beach (N=18)
Norfolk (N=26)
67
22
8
8
49
35
8
10
64
25
9
55
18
18
68
30
7
72
21
8
78
12
17
71
12
74
14
7
79
18
75
19
12
76
12
14
61
22
74
23
24
52
17
7
19
52
21
8
17
66
11
92
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuating Households

FIG. 36

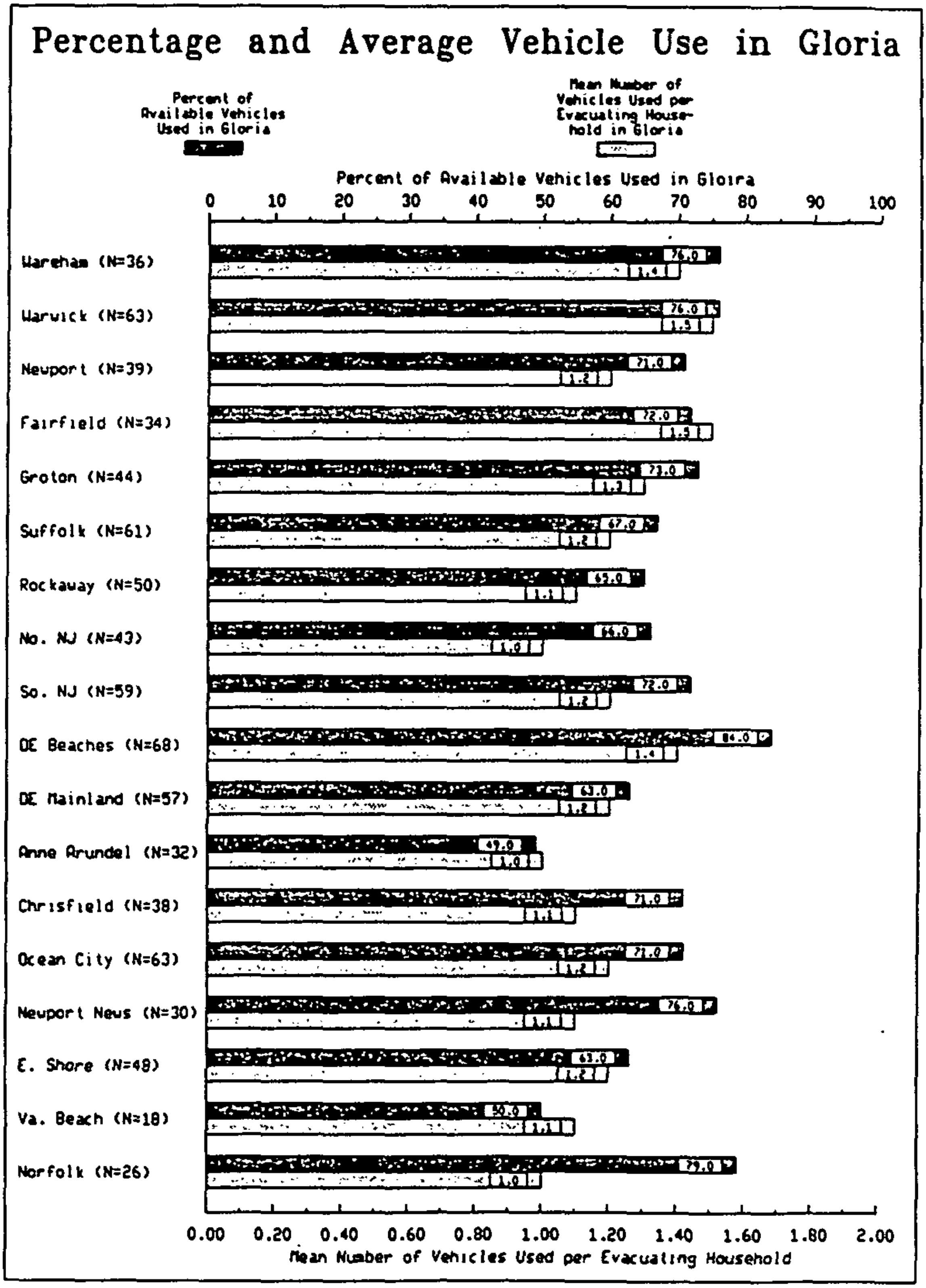

Percentage and Average Vehicle Use in Gloria
Percent of Available Vehicles Used in Gloria
Mean Number of Vehicles Used per Evacuating Household in Gloria
Percent of Available Vehicles Used in Gloira
0 10 20 30 40 50 60 70 80 90 100
Wareham (N=36) 76.0 1.4
Warwick (N=63) 76.0 1.5
Newport (N=39) 71.0 1.2
Fairfield (N=34) 72.0 1.5
Groton (N=44) 73.0 1.3
Suffolk (N=61) 67.0 1.2
Rockaway (N=50) 65.0 1.1
No. NJ (N=43) 66.0 1.0
So. NJ (N=59) 72.0 1.2
DE Beaches (N=68) 84.0 1.4
DE Mainland (N=57) 63.0 1.2
Anne Arundel (N=32) 49.0 1.0
Chrisfield (N=38) 71.0 1.1
Ocean City (N=63) 71.0 1.2
Newport News (N=30) 76.0 1.1
E. Shore (N=48) 63.0 1.2
Va. Beach (N=18) 50.0 1.1
Norfolk (N=26) 79.0 1.0
0.00 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
Mean Number of Vehicles Used per Evacuating Household

FIG. 37

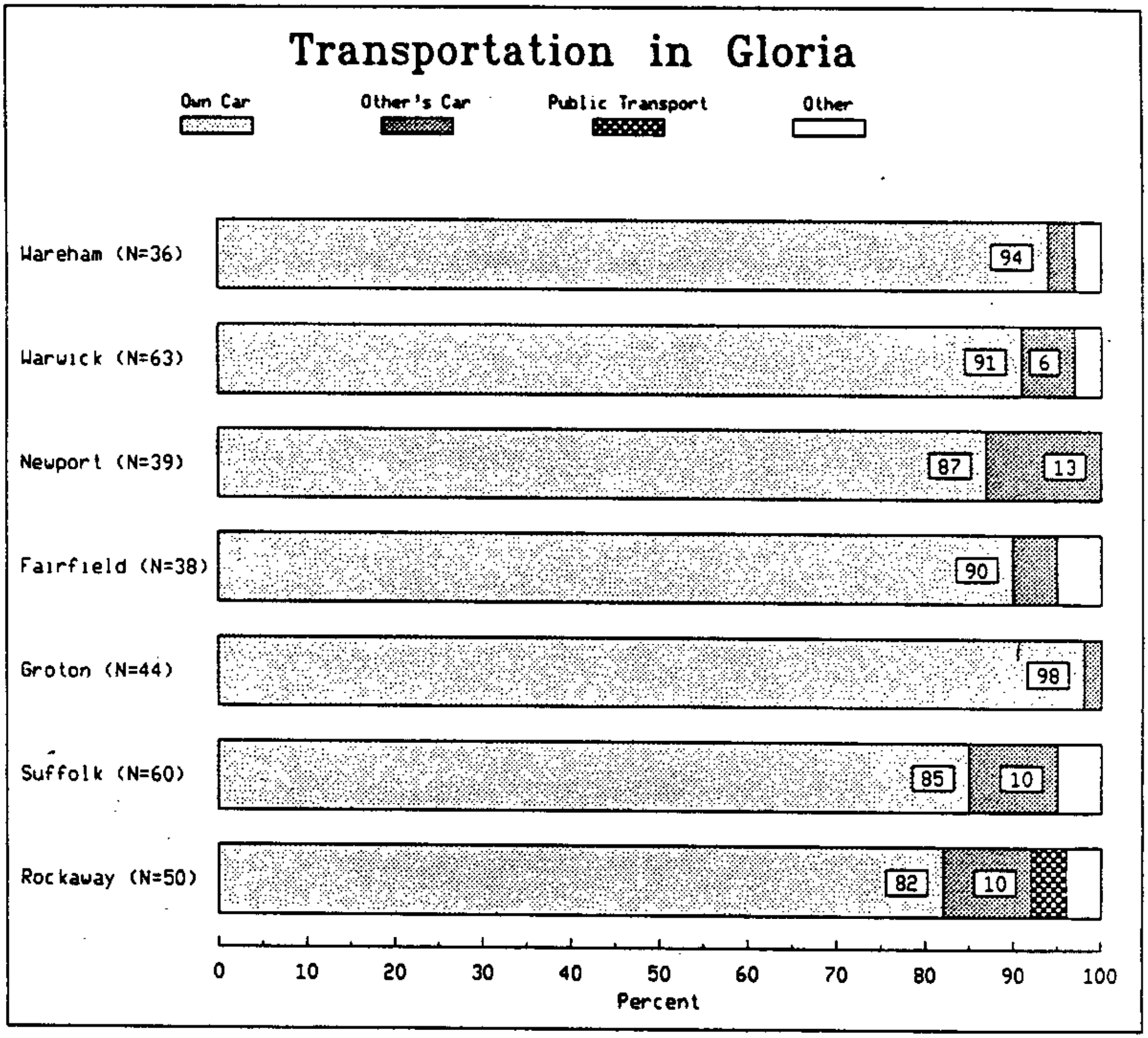
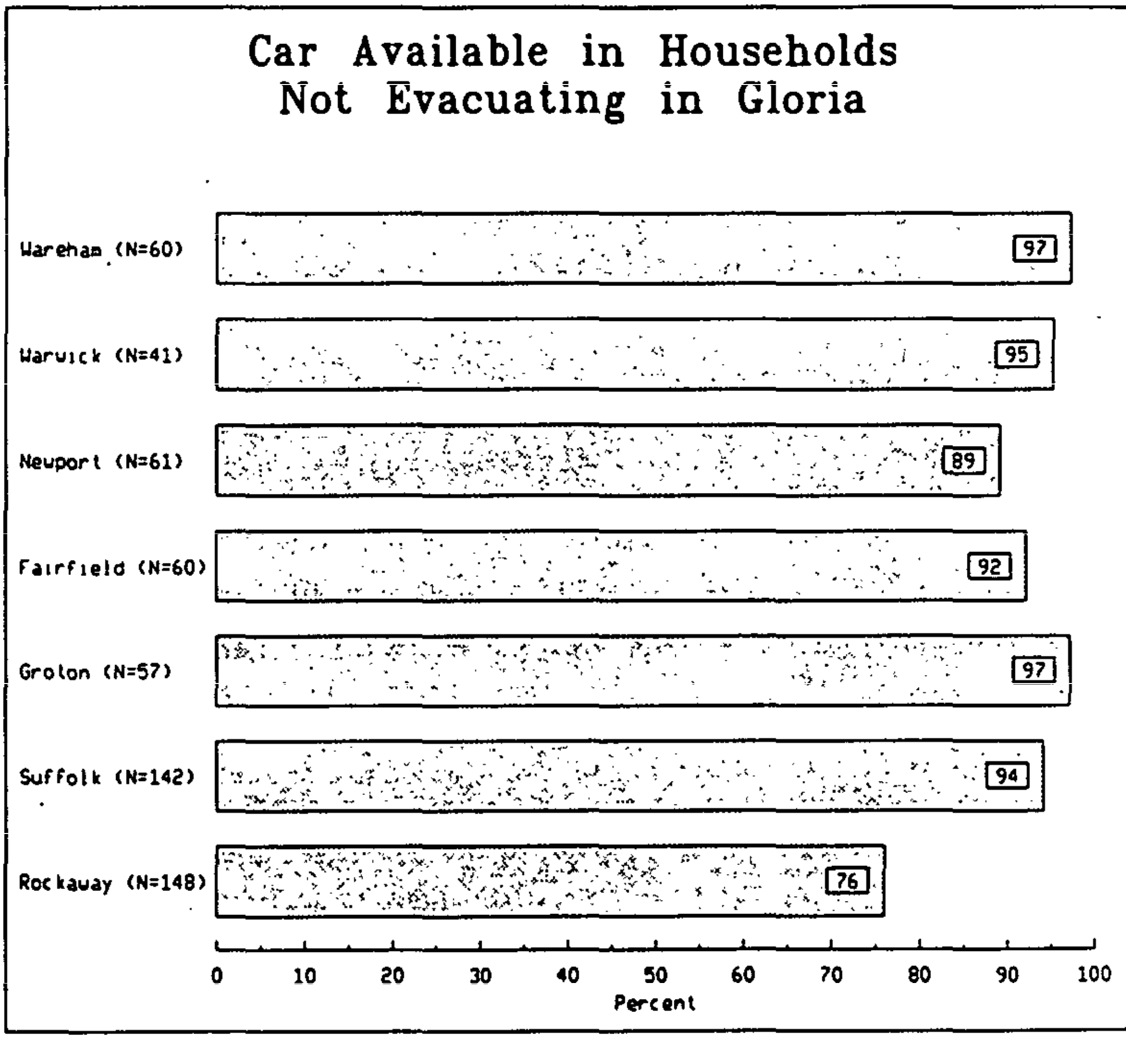

Transportation in Gloria
Own Car
Other's Car
Public Transport
Other
Wareham (N=36)
Warwick (N=63)
Newport (N=39)
Fairfield (N=38)
Groton (N=44)
Suffolk (N=60)
Rockaway (N=50)
94
91
6
87
13
90
98
85
10
82
10
0
10
20
30
40
50
60
70
80
90
100
Percent

FIG. 38



Car Available in Households
Not Evacuating in Gloria
Wareham (N=60)
Warwick (N=41)
Newport (N=61)
Fairfield (N=60)
Groton (N=57)
Suffolk (N=142)
Rockaway (N=148)
97
95
89
92
97
94
76
0
10
20
30
40
50
60
70
80
90
100
Percent

FIG. 39

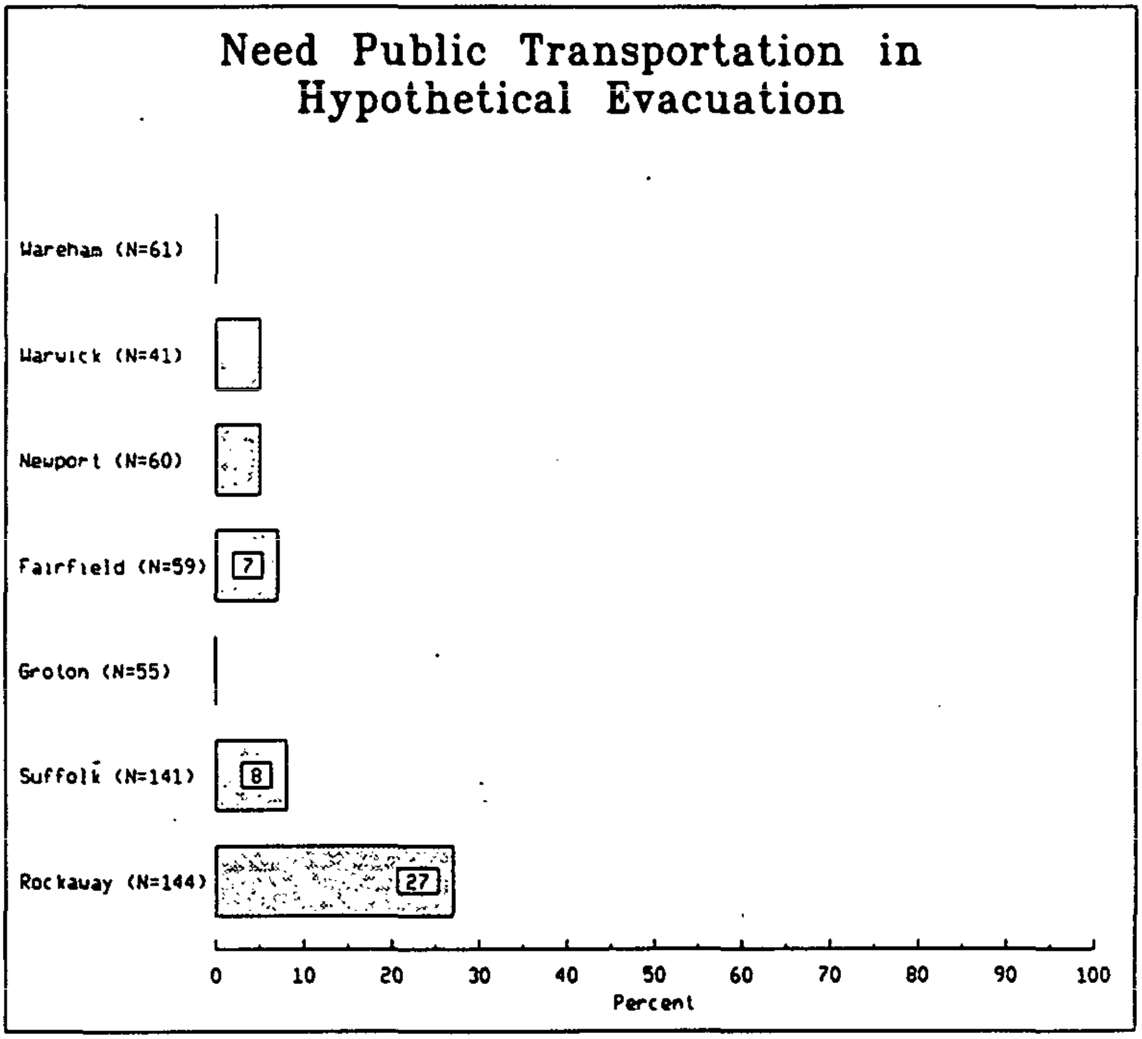
MD, Denton, and Rockaway) and in those cases it was 5% or fewer (of the nonevacuees). Rockaway (the question being asked only in the northern area) also had the greatest incidence of people saying they would need to use public transportation if they evacuated (Fig. 40).

Evacuation Assistance

Evacuees in all sites were asked whether they required outside assistance in evacuating in Gloria (Fig. 41). Very few said they did. In most locations no one said they needed help from an agency to evacuate, and of those who did, the figure was 5% or less every place except Chrisfield where it was 11% (+ or - 10% points).

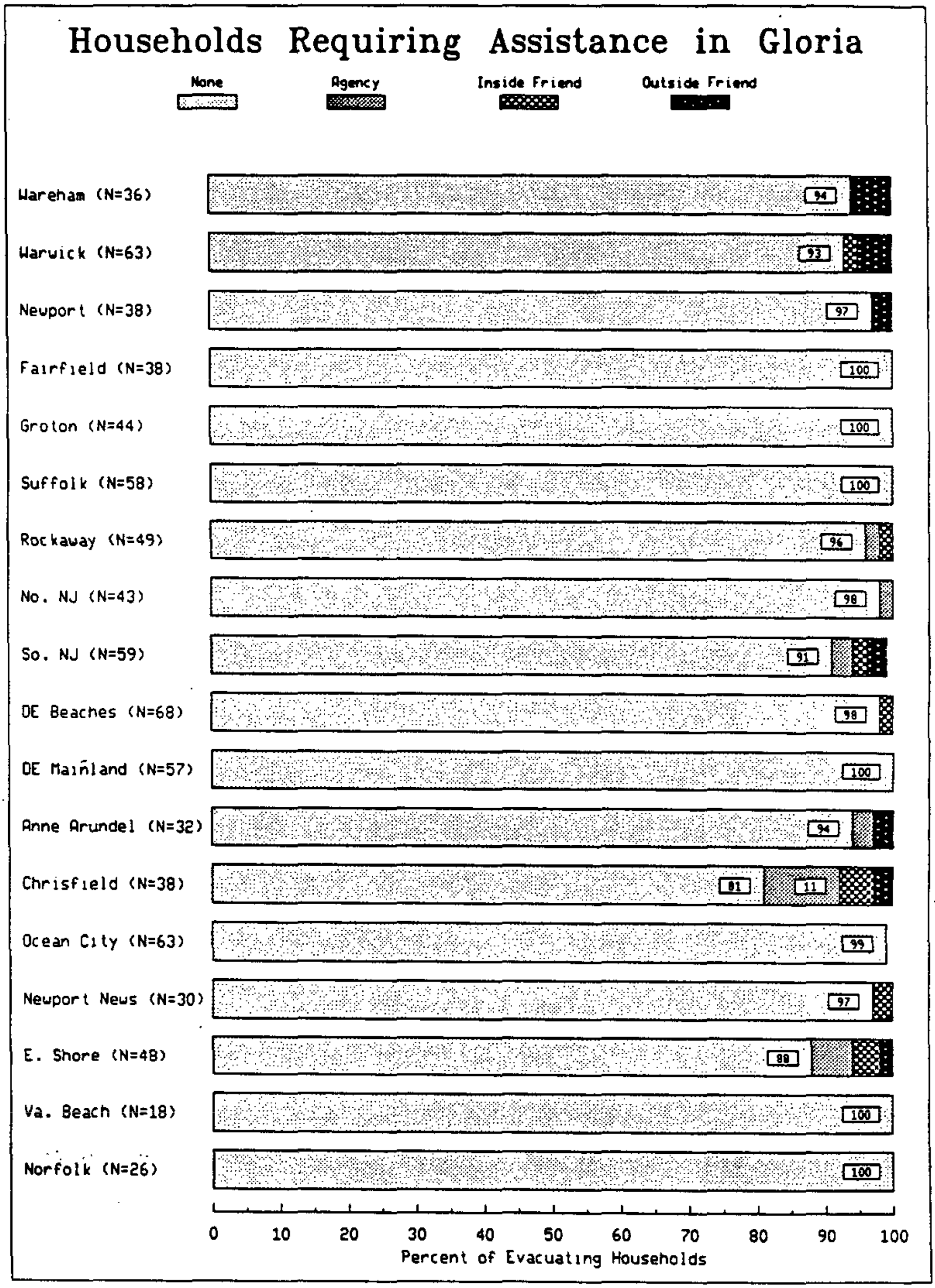
Respondents not evacuating in Gloria were asked whether they would need help if they evacuated (Fig. 42). The question was asked the same way in the northern and southern areas, but responses were coded in more detail in the northern area. Thus, in the southern area there is the "yes, general" category, whereas in the northern area it is broken down into "yes, agency" and "yes, other." Variation in response was substantial from site to site. Where they could be specific, few said they would need agency assistance. In the southern area it's probably reasonable to assume that agency dependence would be comparable to that mentioned in the northern area. Newport News had the highest overall percentage saying help would be needed from someone outside the home.

These figures are not unusual. Most help from outside the household usually comes from friends and relatives. Even when residents believe they would require agency assistance, friends or relatives usually fill the need instead.



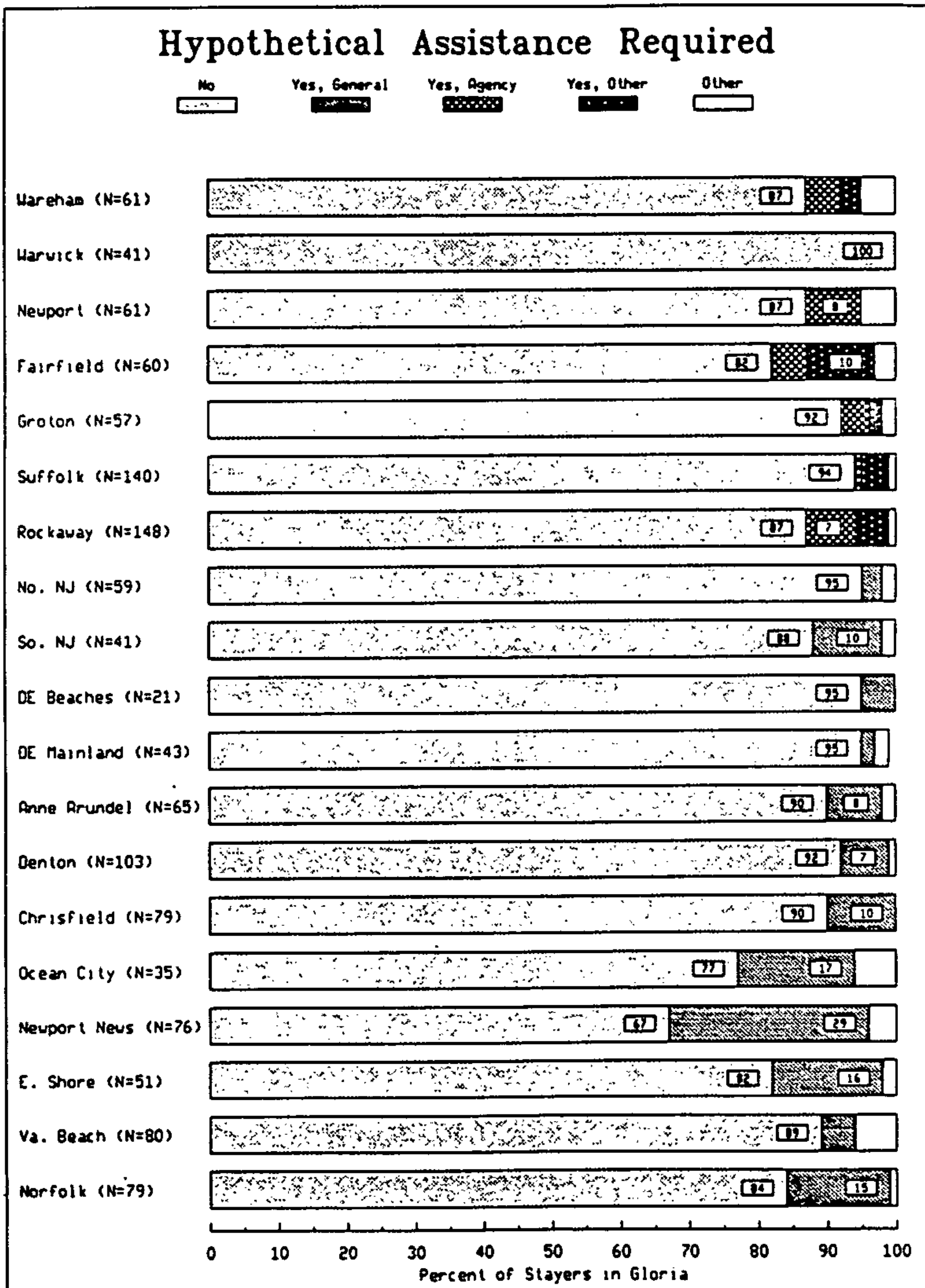
Need Public Transportation in Hypothetical Evacuation
Wareham (N=61)
Warwick (N=41)
Newport (N=60)
Fairfield (N=59)
7
Groton (N=55)
Suffolk (N=141)
8
Rockaway (N=144)
27
0
10
20
30
40
50
60
70
80
90
100
Percent

FIG. 40



Households Requiring Assistance in Gloria
None
Agency
Inside Friend
Outside Friend
Wareham (N=36)
Warwick (N=63)
Newport (N=38)
Fairfield (N=38)
Groton (N=44)
Suffolk (N=58)
Rockaway (N=49)
No. NJ (N=43)
So. NJ (N=59)
DE Beaches (N=68)
DE Mainland (N=57)
Anne Arundel (N=32)
Chrisfield (N=38)
Ocean City (N=63)
Newport News (N=30)
E. Shore (N=48)
Va. Beach (N=18)
Norfolk (N=26)
94
93
97
100
100
100
96
98
91
98
100
94
81
11
99
97
88
100
100
0
10
20
30
40
50
60
70
80
90
100
Percent of Evacuating Households

FIG. 41



Hypothetical Assistance Required
No
Yes, General
Yes, Agency
Yes, Other
Other
Wareham (N=61)
Warwick (N=41)
Newport (N=61)
Fairfield (N=60)
Groton (N=57)
Suffolk (N=140)
Rockaway (N=148)
No. NJ (N=59)
So. NJ (N=41)
DE Beaches (N=21)
DE Mainland (N=43)
Anne Arundel (N=65)
Denton (N=103)
Chrisfield (N=79)
Ocean City (N=35)
Newport News (N=76)
E. Shore (N=51)
Va. Beach (N=80)
Norfolk (N=79)
0
10
20
30
40
50
60
70
80
90
100
Percent of Stayers in Gloria

FIG. 42

Appendix I

Questionnaire Used in Survey

HURRICANE GLORIA/MID-ATLANTIC/NORTHEAST SURVEY
PHASE II
NOVEMBER, 1987

1. Did you leave your home to go someplace safer in response to the hurricane threat?

   1 Yes (GO TO Q.2)
   5 No (SKIP TO Q.11)
   7 Other (GO TO Q.2, IF APPLICABLE)

2. Did you go to a:

   1 Public Shelter
   3 Friend or Relative's Home
   5 Hotel/Motel
   7 Other (______)

3. Where was that located?

   1 Locally (in same town as residence)
   5 Out-of-town (________________________)
   (Specify name of town)

4. What convinced you to go someplace safer? (CODE UP TO 3 RESPONSES)

   22 Advice or order by elected officials
   33 Advice from Weather Service
   44 Advice/order from police or fireman
   55 Advice from media
   66 Advice from friend/relative
   77 Concern about severity of storm
   88 Concern that storm <u>might</u> hit
   91 Heard probability (odds) of hit
   95 Other: (________________________)
   (Specify)

5. When did you leave your home to go someplace safer?

   TIME: [|] : [|] AM [ ]

   PM [ ]

   DATE:

M	T	W	R	F	SA	SU
23	24	25	26	27	28	29

6. How long did it take you to get to where you were going?

   __ __.__ Hrs (to nearest 1/2 hr)

   (Never reached original destination=99.9)

7. When did you first return home from the place to which you evacuated?

T	W	R	F	SA	SU	M	T
24	25	26	27	28	29	30	31

8. Did you or anyone in your household require special assistance in evacuating?

   1 No
   3 Yes, by agency
   5 Yes, by friend or relative within household
   7 Yes, by friend or relative outside household
   9 Don't Know/Not Sure

8a. Did your household use your own vehicle(s) in evacuating, leave with someone else in theirs, or did you use public transportation?

   1 Own
   3 Other's
   5 Public Transportation
   7 Other ______________________________

9. How many vehicles did your household take in evacuating?

   ____

10. How many vehicles were available to take in evacuating?

   ____ (GO TO Q.12)

NON-EVACUEES ONLY

11. What made you decide not to go anyplace else? (CODE UP TO 3 RESPONSES)

   05 Storm not severe/house adequate
   20 Officials said evacuation unnecessary
   30 Media said evacuation unnecessary
   35 Friend/relative said evacuation unnecessary
   45 Probabilities indicated low chance of hit
   55 Information indicated storm wouldn't hit
   60 No Officials said to evacuate
   65 Had no transportation
   70 Had no place to go
   75 Wanted to protect against looters
   80 Wanted to protect against storm
   85 Left unnecessarily in past
   90 Job required staying
   95 Other: ______________________________

FOR EVERYONE:

12. Did you hear from anyone in an official position -- civil defense, the mayor's office, the governor, police -- that you should evacuate to a safer place?

1 Yes
5 No (GO TO Q.14)
9 Don't Know (GO TO Q.14)

13. Did they say that you should evacuate or that you must evacuate?

1 Should
5 Must
9 Don't Know

-->14. How well do you think the warning and evacuation process was handled in the Gloria threat?

11 Good/OK
22' Traffic a problem
33 Not enough information
55 Shouldn't have been told to evacuate
66 Shelters bad, crowded, etc.
77 Other: ____________________

14a. Do you think your home would be safe to stay in if a major hurricane were to strike this area directly?

1 No
3 Yes
5 Don't Know

15. Would you do anything differently if you were in the same situation again? (CODE UP TO 3 RESPONSES)

11 Would evacuate
22 Wouldn't evacuate
33 Would leave earlier
44 Would wait later to leave
55 Would go further away
66 Wouldn't go as far
77 Would go to public shelter
88 Wouldn't go to public shelter
90 No
95 Other ____________________

EVACUEES, SKIP TO Q.18

NON-EVACUEES ONLY

16. If you evacuate in a future hurricane, would you go to:

1 A Friend/Relative's Home
3 A Hotel/Motel
5 A Public Shelter
7 Other
9 Don't Know/Not Sure

16a. Where specifically would you go if you evacuated, someplace local or someplace out-of-town?

1 Local (same town/borough as residence)
5 Out-of-town (borough) (__________)
9 Don't Know

17. Would you or anyone in your household need special assistance from anyone outside the household in evacuating?

1 Yes, from government agency
3 Yes, from other
5 No
7 Other __________

17a. Do you have a car or other vehicle to use in evacuating?

1 Yes
3 No
5 Other

17b. If you evacuated, would you need to use public transportation?

1 Yes
3 No
5 Other
7 Don't Know

ASK OF ALL RESPONDENTS

The following questions are for statistical purposes only.

18. Which of the following structures do you live in?

1 High-rise (6 or more stories) Condo or Apartment
3 Detached Single Family Building
5 Mobile Home
7 Other
9 Don't Know/Refused

19. How far is your home from the water?

  1 Waterfront on beach
  3 Waterfront on Sound
  5 Other Waterfront
  2 Less than 1 block from beach
  4 Less than 1 block from bay
  6 Less than 1 block from water
  7 More than 1 block, less than 1 mile from water
  8 More than 1 mile from water
  9 Don't Know/Refused

20. Which of the following ranges describes your household income for a year?

  1 Less than $10,000
  3 $10,000 to $24,999
  5 $25,000 to $39,999
  7 $40,000 to $79,999
  8 over $80,000
  9 Don't Know/Refused

21. How old were you on your last birthday?

  1 Under 25
  3 25 to 39
  5 40 to 65
  7 Over 65
  9 Refused

Thank you, that completes our survey. Good Bye!

Hurricane Evacuation Behavioral Assumptions for Connecticut

Appendix to
Hurricane Evacuation Behavior in the Middle Atlantic and Northeast States

Prepared by

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For

U.S. ARMY CORPS OF ENGINEERS

October, 1988

Preface

This document is accompanied by a lengthier report titled *Hurricane Evacuation Behavior in the Middle Atlantic and Northeast States*, referred to hereafter as the "Main Report". That volume provides background information relevant to understanding the following discussion. In particular the Main Report describes methodology and data which form the basis for many of the recommendations included in this volume. On occasion this report will make reference to "MR-Fig. *x*", meaning a particular figure in the Main Report.

Sample survey results for two Connecticut locations are reported in this document, but the reader should be aware that they are included as "tests" of the general response model's applicability to Connecticut rather than to provide actual figures for evacuation planning. Even for the two sites themselves response in future hurricanes could be considerably different than that observed in Gloria.

	Severe Storm Evacuation Ordered in High/Mod. Risk Areas, and Mobile Homes			Weak Storm Evacuation Ordered in High Risk Areas Only, and Mobile Homes	
Risk Area					
High	*Mod*	*Low*	*High*	*Mod*	*Low*
Housing Other Than Mobile Homes					
90%	70%	30%	80%	40%	20%
Mobile Homes					
90%	85%	60%	90%	70%	55%

Note:

Figures will be lower if officials are not successful in communicating orders.

Table 1. Evacuation rates to be used for planning in Connecticut.

Storm Severity

The table addresses two storm scenarios. The first is a strong storm, a category 3 or worse. The second storm is weaker. The difference obviously is that more people are at risk in the more severe storm, and evacuation will be greater from moderate-risk and low-risk locations.

Action by Officials

It is assumed that officials will tell people to leave from high-risk and moderate-risk locations and tell all mobile home dwellers in coastal counties to evacuate in the severe storm. In the weaker storm only mobile home residents and people who live in high-risk locations are told to leave.

It is also assumed that officials are successful at communicating the evacuation notices to residents. The Gloria data attests to the greater likelihood of people leaving if they believe officials have told them to. The only way to ensure that everyone will hear the notice is to have it disseminated door-to-door. If that is not possible, vehicles with loudspeakers are the second best method. If officials cannot disseminate the evacuation notices in either of those manners, evacuation rates will be 25% lower in high-risk areas and 50% lower in moderate-risk and low-risk areas.

Risk Area

High-risk areas refer primarily to barrier islands and other land areas exposed to the open ocean where wave battering and scour are major hazards in addition to flooding. Moderate-risk areas are subject to flooding in moderate to strong storms but do not experience significant battering and scour. Low-risk areas are subject only to wind and are adjacent to moderate-risk locations. Most of the sample households in the two areas are located in high-risk to moderate-risk locations.

Housing

Table 1 distinguishes between mobile homes and other housing. Neither of the survey locations contained a large percentage of mobile homes, but they should be considered separately for planning. Evacuation will be greater from mobile homes than from other housing, all other factors being the same.

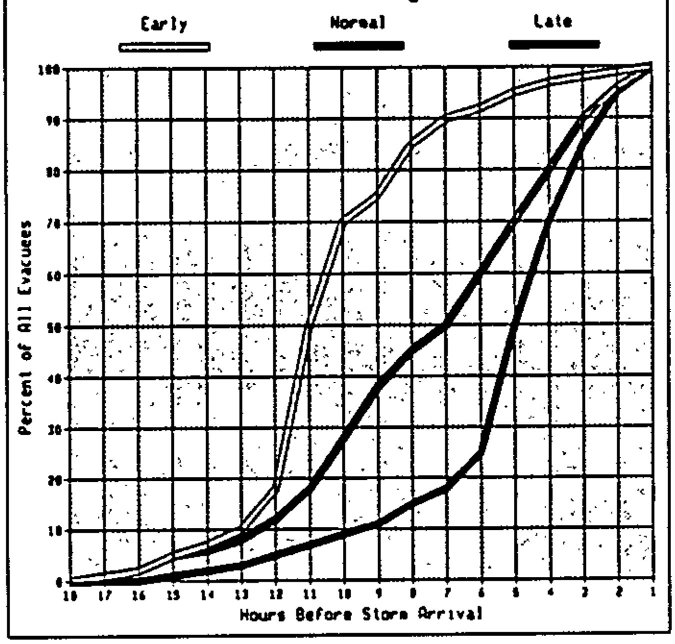
Evacuation Timing By Residents

With so few evacuees in the two samples, it's difficult to make very confident statements about the exact time evacuees left. The matter is further complicated by the fact that interviewees were being asked to recall fairly precise information from something that occurred two years previously. It appears, however, that evacuees began to leave somewhat earlier from the Groton area than from the Fairfield area (MR-Fig. 23). (Figure 23 in the *Main Report* is in error. Fifty-five percent of the Groton evacuees said they left on the 26th, not 21% as reported in the figure.) This probably reflects differences in the timing of actions taken by local officials.

Evacuation timing, however, will vary greatly from storm to storm, and little can be generalized from Gloria. For planning purposes three different sets of assumptions depicted in Figure 1 should be analyzed. The three curves in Figure 1 reflect three different rates at which evacuees leave, reflecting in turn three different levels of urgency.

The left-most curve represents response when forecasts are early and residents are told to evacuate with plenty of warning. That scenario should probably be called optimistic. The middle curve is probably more typical. Warning is not quite so early in relation to landfall. Finally, the right-hand curve will pertain when a storm accelerates, intensifies, or changes course unexpectedly. People will leave very promptly if it is made clear to them that they must. All three curves should be used for planning because all three will occur eventually.

Fig. 1. Cumulative Response Curves for Planning



Fewer than 20% of eventual evacuees will leave before being told to leave. When told, however, people will leave as promptly as they believe they must. Given the luxury of time, most people will not evacuate late at night and will wait until morning if they haven't left by 11 pm or midnight. People will leave in the middle of the night if officials make it clear that circumstances make it imperative that they do so. People from high-risk locations (barrier islands) tend to leave earlier than other evacuees.

Demand for Public Shelters by Residents

Few evacuees in either survey area used public shelters: 23% of the Groton evacuees said they went to public shelters compared to 11% of the Fairfield evacuees (MR-Fig. 25). Due to the sample sizes, however, both figures are subject to enough uncertainty to prevent the conclusion that there were overall differences in shelter use among all evacuees from the two areas. It's likely that overall differences were smaller than those found in the samples. Such figures are normal for *high-risk* and *moderate-risk* locations. Residents of beach communities usually have higher incomes and choose not to stay at public shelters and can afford motels if arrangements can't be made with friends and relatives. They also tend to leave earlier and go farther.

Late night evacuation tends to maximize shelter use, primarily because it is occurring with a sense of urgency, leaving no time to make alternative arrangements with friends, relatives, and motels or leaving too little time to travel the distance necessary to go out-of-town, particularly at night.

Hypothetical shelter use among non-evacuees was greater than actual use among evacuees (37% in Groton and 25% in Fairfield) (MR-Fig. 27). These hypothetical responses are typical of the 100% overestimation normally observed when comparing intended to actual shelter use. It does, however, tend to reinforce the notion that dependence upon public shelters will be greater in Groton.

Table 2, showing guidelines for projecting normal shelter demand, reflects these patterns. Late, urgent evacuations, which will roughly double normal shelter demand, are not a function of location. It should also be noted that emergency management officials in some communities encourage shelter use more than others, and such policies should be taken into account in planning, because officials can take actions which either increase or decrease shelter use. Other factors to note are that retirees living in "retirement areas" are more likely to use public shelters than other groups, some communities have churches and other organizations which reduce "public" shelter use by being more active than normal in providing their own shelters, and some housing developments and mobile home parks provide onsite shelter which will alleviate demand for public shelter.

	Risk Area		
Income	*High*	*Mod*	*Low*
High	5%	10%	10%
Med.	10%	20%	30%
Low	-	40%	40%

Note:

Figures will be higher if officials encourage use of public shelters.
Figures will be lower for developments with on-site shelters (e.g., clubhouses).
Figures will be lower where churches and other organizations shelter members.

Table 2. Evacuees going to public shelters: planning assumptions for Connecticut.

Evacuation Out-of-Town by Residents

Less than half the people evacuating from both survey areas went out-of-town: 45% in Groton and 35% in Fairfield (MR-Fig. 30). Almost everyone in both locations said they required 30 minutes or less to reach their destinations, however, suggesting that evacuees travelled very short distances (MR-Fig. 31).

Differences are accounted for primarily by income (low income residents don't go as far), evacuation timing (late night, urgent evacuees don't go as far), and risk area (evacuees from high-risk beach areas go farther). Table 3 reflects these generalizations. *Note too, that emergency* management officials can influence this response. In some locations agencies have policies to discourage evacuees from staying in the local area. Communities which aggressively provide and publicize public shelters will have fewer evacuees leaving the local area.

Very Strong Storm, Early Evacuation			Weak Storm Typical Timing		
Risk Area			Risk Area		
High	*Mod*	*Low*	*High*	*Mod*	*Low*
75%	45%	25%	50%	30%	20%

Note:

Figures will be lower for low income and elderly retired evacuees.

Figures will be lower for last minute evacuations.

Figures will be higher if officials encourage evacuees to leave area.

Table 3. Percent of evacuees leaving local area: planning assumptions for Connecticut.

Vehicle Use by Residents

The average number of vehicles used per evacuating household in Gloria was greater for Fairfield (1.5) than Groton (1.2) (MR-Fig. 37). More people in Fairfield used no vehicles at all, probably walking short distances to friends or to shelters or riding with someone else (MR-Fig. 36).

Normally 65% to 75% of the vehicles available to a household are used in evacuations, and both Connecticut survey locations fell within that range in Gloria (72% and 73%). For planning purposes it would be reasonable to assume that approximately 70% to 75% of available vehicles will be used in most evacuations.

No one in either sample said they required assistance from public agencies in evacuating (MR-Fig. 41), and no one said they used public transportation (MR-Fig. 38). Of those respondents who did *not* evacuate in Gloria, approximately 5% in both areas said they would have needed agency assistance if they had evacuated (MR Fig. 42). Even in communities where agencies prepare lists of people and addresses needing evacuation assistance, it is common to find that those people have already been provided for by friends and relatives when public vehicles arrive to collect them. No one in Groton and 7% of the stayers in Fairfield said they would use public transportation if they evacuated (MR-Fig. 40). Three percent of the stayers in Groton and 8% in Fairfield said they had no cars of their own available (MR-Fig. 39).

APPENDIX C

Transportation Analysis Support Documentation

April 1994

Connecticut Hurricane Evacuation Study Transportation Analysis Support Documentation

US Army Corps of Engineers

FEDERAL EMERGENCY MANAGEMENT AGENCY

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Section One
INTRODUCTION

1.1 PURPOSE

The purpose of the Transportation Analysis is to estimate roadway clearance times for coastal Connecticut communities under a variety of hurricane evacuation scenarios. Clearance time is defined as the amount of time required for all vehicles to clear the roadways after a regional or state level hurricane evacuation recommendation is disseminated to the public. During an evacuation, a large number of vehicles have to travel on a road system in a relatively short period of time. A virtually infinite number of different vehicle trips are possible, varying by trip origination, time of departure, and trip destination. The number of vehicle trips becomes particularly significant for an area such as Connecticut's coast because its land areas are highly urbanized with many residents living near the immediate shore. The number of evacuating vehicles varies depending upon the intensity of the hurricane, actions taken by local authorities, and certain human behavioral response characteristics of the area's population. Motorists evacuating their homes and intermixing with traffic from people leaving work or traveling for other trip purposes can lead to significant traffic congestion and backups, ultimately delaying the evacuation.

The Transportation Analysis is one element of a much broader study entitled the Connecticut Hurricane Evacuation Study (HES). The Connecticut HES Technical Data Report presents the results of several technical analyses to provide emergency management officials with realistic data quantifying the major factors involved in hurricane evacuation decision-making. The technical data presented in the Study is not intended to replace the detailed operations plans developed by the State and communities. Rather, the data is intended to provide a framework within which each jurisdiction can update and revise hurricane evacuation plans and from which operation procedures and guides can be developed for future hurricane threats. Because the Transportation Analysis builds upon results from other analyses of the Study, in this report, reference is frequently made to information that is presented in detail in the Technical Data Report (TDR).

A transportation modeling methodology and a roadway representation were developed for all counties in the study area to conduct the analysis and estimate clearance times. This analysis establishes the clearance time portions of evacuation times. Clearance time is one component of the total time required for a regional hurricane evacuation to be completed. An additional time component, which considers the amount of time necessary for public officials to notify people to evacuate, must be combined with clearance time to determine the total evacuation time. More information on how decision-makers can use the results of this analysis is discussed in detail in Chapter 8, *Decision Analysis*, of the TDR.

1.2 STUDY AREA

The study area approximates most of the land areas and highway infrastructure of the four counties of Fairfield, New Haven, Middlesex, and New London, Connecticut. The road system under examination includes all State maintained highways from the New York State line to the Rhode Island State border, 12 to 18 miles inland from the coast. The analysis assumes evacuees originate from the 25 coastal communities and safe destinations include locations within coastal communities as well as locations farther inland, or in adjacent States. The Transportation Analysis was done at a state level, or macro scale, rather than at a community level because the intermixing of traffic from one community to the next was considered perhaps a leading contributor to delays in evacuations.

1.3 METHODOLOGY

The Behavioral Analysis discussed in Chapter Four presents information about which destination types evacuees are most likely to choose during an evacuation in Connecticut. The analysis concludes that people who evacuate surge areas are most likely to seek safe destinations at public shelters, friends'/relatives' homes, or hotels/motels. Although behavioral data provided in Chapter Four can give some guidance in predicting the actual geographic areas people will evacuate to and the evacuation routes people may use to reach their destinations, assumptions of this nature tend to be subjective. This is caused by the vast number of possible destinations and routes available to evacuees in highly populated areas. Clearance time calculations are further complicated by the affects of significant and varying amounts of "background" traffic that will be present on roadways as an evacuation progresses ("background" traffic refers to vehicle trips by people who leave work early and return home, people who travel through the region, and trips made by people preparing for the arrival of hurricane conditions or engaged in normal activities).

The study considered several approaches to estimate clearance times for the Connecticut study area. The first approach considered was the one used by the Corps of Engineers and the FEMA to complete hurricane evacuation studies in the Gulf and southern Atlantic coast states. This approach assigns destinations and evacuation routes for the evacuating population by matching probable evacuee destinations (determined by a behavioral analysis) with the land uses known for the region. A mathematical model of the study area's roadway system is then used to calculate clearance times based on the trip distributions assumed for the evacuation. The time required for all evacuees to reach their predetermined destination is considered the clearance time. As reported in a post-hurricane assessment of Hurricane Hugo in 1989, the transportation analyses conducted for the North Carolina and South Carolina Hurricane Evacuation Studies were found to be very accurate in that the clearance times experienced during evacuations were very near predicted times. These results give evidence that this approach is accurate for study areas with moderate roadway systems and where adequate behavioral data and landuse information is suitable to identify evacuation routes and predict the destinations of evacuees. *The following paragraphs explain some differences in the Connecticut study area in* comparison to other areas, and give the reasons why the Corps of Engineers employed and alternative transportation modeling approach for Connecticut.

One concern in using the transportation modeling approach discussed above for Connecticut was the appropriateness of designating evacuee destinations and evacuation routes. Inundation areas in Connecticut are relatively narrow, but densely populated. The complex system of interconnecting freeways, undivided state routes, and numerous local streets offer evacuees, and others on the roadways, many possible travel routes to reach their destinations. The region is generally characterized by diverse land uses in small geographic areas. Hotels and motels are sporadically located in most communities, friends' and relatives' homes could well be distributed over the entire area, and Connecticut communities tend to open public shelters to accommodate their individual demands. The Study concluded that it is not practical to use the behavioral information developed for Connecticut to derive assumptions about evacuee destinations and evacuation routes. The Study did conclude that the behavioral response curves presented in the Behavioral Analysis, and used in other hurricane evacuation studies, are suitable to predict the general response of the people who live in vulnerable areas.

The second concern in using the modeling approach used in other studies was the relationship between the number of people evacuating from vulnerable areas in comparison to the number of background vehicles that would be on the roadways during evacuations. Although surge areas are densely populated, the relatively small land areas that they encompass include only a fraction of the region's total population. When viewing the region's roadways as an entire transportation system, most of the traffic on roadways during initial and mid stages of an evacuation is likely to be from people leaving work early and from vehicles passing through the region. The problem during evacuations is that evacuating vehicles are forced to compete for roadway capacity with a larger amount of background traffic. This can cause increased congestion, potentially delaying the overall evacuation. Because background traffic will travel in both directions on nearly all roadways during evacuations, the Study determined that the transportation methodology for Connecticut should not focus on assigning evacuation routes as typically done in *other study areas. Instead, the methodology should* focus on analyzing the influence background traffic can have on the overall evacuation.

To address the unique behavioral and transportation issues of the Connecticut study area, an *alternative modeling strategy was used.* A mathematical model of the road system was developed and calibrated to simulate the traffic flows of a normal week day. Traffic count data used to calibrate the model were available from the State's Department of Transportation (DOT), which collects information on vehicle movements, volumes, and other traffic data every day. The transportation modeling methodology assumes that the preferences of evacuees to travel on given routes are related to the traffic patterns of a normal day, except where it is clear that evacuees will travel directly to public shelters. The large portion of vehicles associated with background traffic enables the methodology to neglect assigning specific destinations and evacuation routes to evacuees traveling to hotels/motels and friends'/relatives' homes. This is supported by the fact that Connecticut's large coastal business community and its generally narrow hurricane surge areas will give rise to evacuations involving traffic mostly attributed to people leaving work rather than people evacuating surge areas. Analysis of traffic data collected on the days Hurricanes Gloria and Bob further support this assumption. Accordingly, the modeling strategy used in Connecticut focuses on estimating clearance times which qualitatively measure how competition by evacuating traffic may affect, possibly delay, the movement of all traffic during an evacuation.

1.4 NETVAC2 TRAFFIC SIMULATION SOFTWARE

NETVAC2 evacuation simulation software was used to create a mathematical model representing the study area's road system. NETVAC2 is a special purpose, network evacuation computer model designed by the Massachusetts Institute of Technology in cooperation with HMM Associates, Incorporated. It was specifically designed to represent traffic flows over a transportation system during an emergency evacuation. This particular model was selected from several available models because it can be easily applied to model hurricane evacuations conducted in areas with complex roadway systems such as coastal Connecticut's.

NETVAC2 represents roadways as links and intersections connecting two or more roadways as nodes. Physical characteristics about representative links and nodes, and the logic connecting them are inputs to the model used in computing vehicle capacity constraints and legal turning movements. Traffic flows at nodes are subject to intersection approach capacity constraints, whereas traffic flow assignments on outbound links are subject to the volume capacities of the modeled roads. Capacities are based on the Highway Capacity Manual (Highway Research Board) and Interim Material on Highway Capacity(Transportation Research Board).

A complementary program for use with NETVAC2, entitled POPDIS, converts the population that is assigned to enter onto roadways to an equivalent number of vehicles. The user enters the vehicle occupancy rates and the number of people assigned to enter the network at each node. As many as five different population types can be specified. POPDIS aggregates the population input for each entry node and in turn computes the effective average vehicle loading rate per minute at each node.

As vehicles are modeled to move throughout the road networks, NETVAC2 utilizes dynamic programming theory to update vehicle densities, speeds, flows, queues, spillbacks and other relevant traffic information at a fixed time step prescribed by the user. Traffic assignments from links entering and emanating nodes are made with each time step. One main feature of the model is that link assignments are made based upon the relative combinations of route preferences input for each node. The model also uses dynamic route selection such that route preferences are modified if significant backups exist at one or more emanating links. Vehicles preferring to travel on links undergoing heavy flows or large queues will be rerouted to another link of second preference. This is an important consideration when simulating hurricane evacuations because evacuees are not likely to wait in traffic for long periods of time if less restrictive, alternate routes are available to them.

Simulations terminate after all vehicles exit the road system. NETVAC2 model results include computer print files of node and link time history flow and queue data, departing vehicle summaries, total simulation time, and total vehicles on the road system at specified report intervals.

Section Two
MODEL DEVELOPMENT

2.1 GENERAL

The following sections discuss the coding assumptions made in applying NETVAC2 for modeling hurricane evacuations in Connecticut. The NETVAC2 User's Manual[3] gives specific data format instructions and a complete description of all parameters required by the model.

The Connecticut DOT provided all of the roadway and intersection data for model development. Roadway and intersection data was primarily retrieved from printouts of state routes extracted from the State Highway Master File[4] and the State Highway Log[5] maintained by the DOT. The printouts contain detailed information such as the number of travel lanes and auxiliary lanes, lane widths, intersection approach widths, and total length of each road segment. Functional classification of routes and land use information are also listed. As networks were created, field surveys conducted at several locations verified that the modeling strategy and data input in the models were consistent with physical conditions.

2.2 ROAD NETWORKS

NETVAC2 allows networks with up to 500 links and 1000 nodes to be constructed. The vastness of the Connecticut study area necessitated that smaller networks dividing the study area be constructed and analyzed individually. For convenience, the region was divided into three, approximately equal sized areas with boundaries that generally conform to Fairfield, New Haven, and Middlesex/New London county boundaries. Figures 1, 2, and 3 show the link and node configurations that were used to represent the road systems of the three study areas.

For each link, the actual number of lanes, lane widths, total roadway length in feet, roadway type, surrounding land use, and lateral clearances from roadside obstructions were entered into a computer link file. Values for roadway lateral clearances were input such that link capacities were not influenced by roadside obstructions except in cases where a particular link represented a highway bridge with a restrictive road shoulder. The logical turning movements from one link to the next and route preferences controlling traffic flow onto each link were also specified.

Single nodes were used to identify intersections of two or more undivided state roads, or to represent significant changes in roadway characteristics. Traffic flowing through intersections modeled using singled nodes is forced to compete for the right of way with opposing traffic from other approaches. Major interchanges connecting divided and undivided highways, or connecting two undivided highways were modeled with as many as six nodes per interchange. A greater number of

FIGURE 1 – Fairfield Network

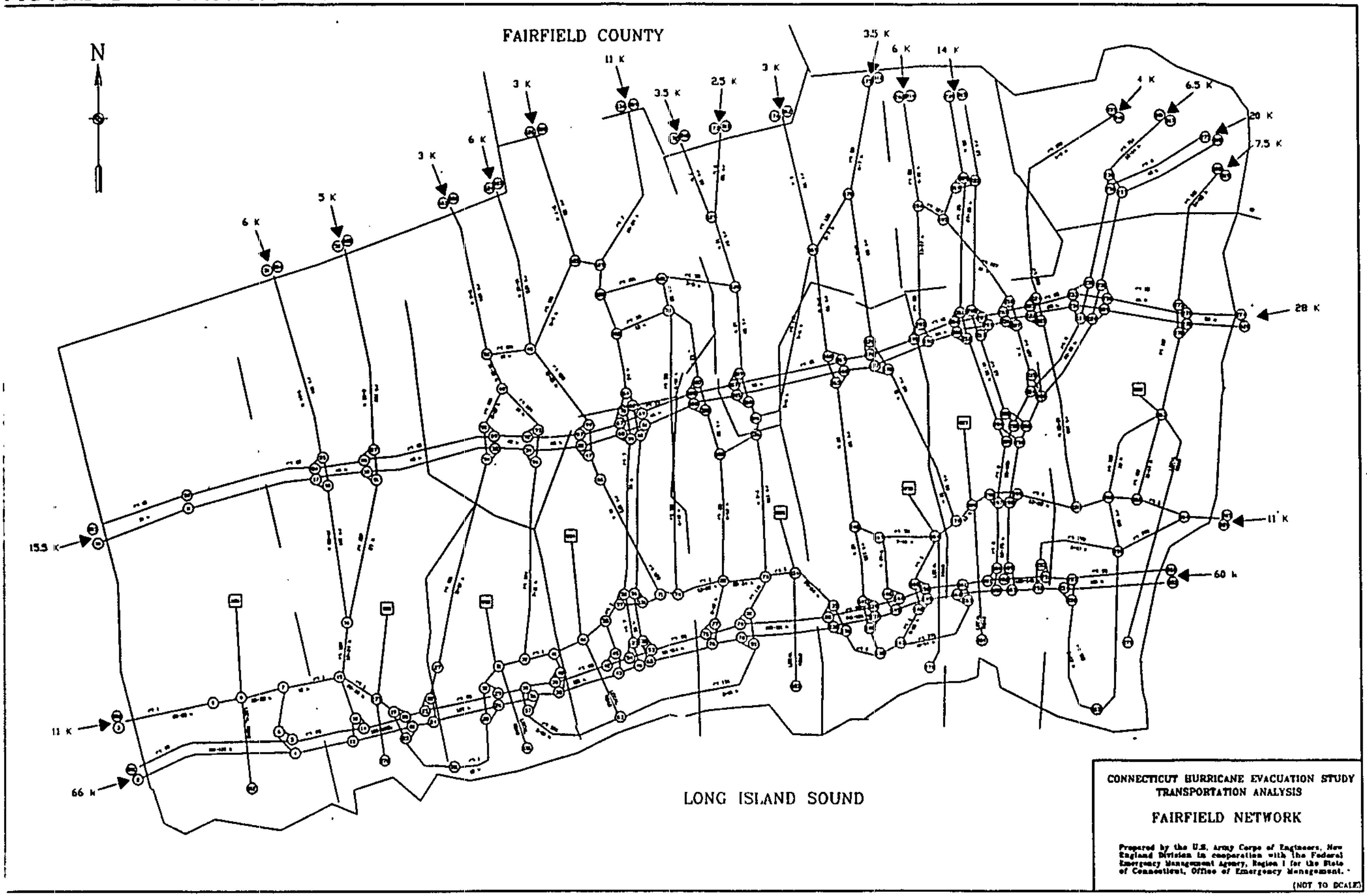


FIGURE 2 - New Haven Network

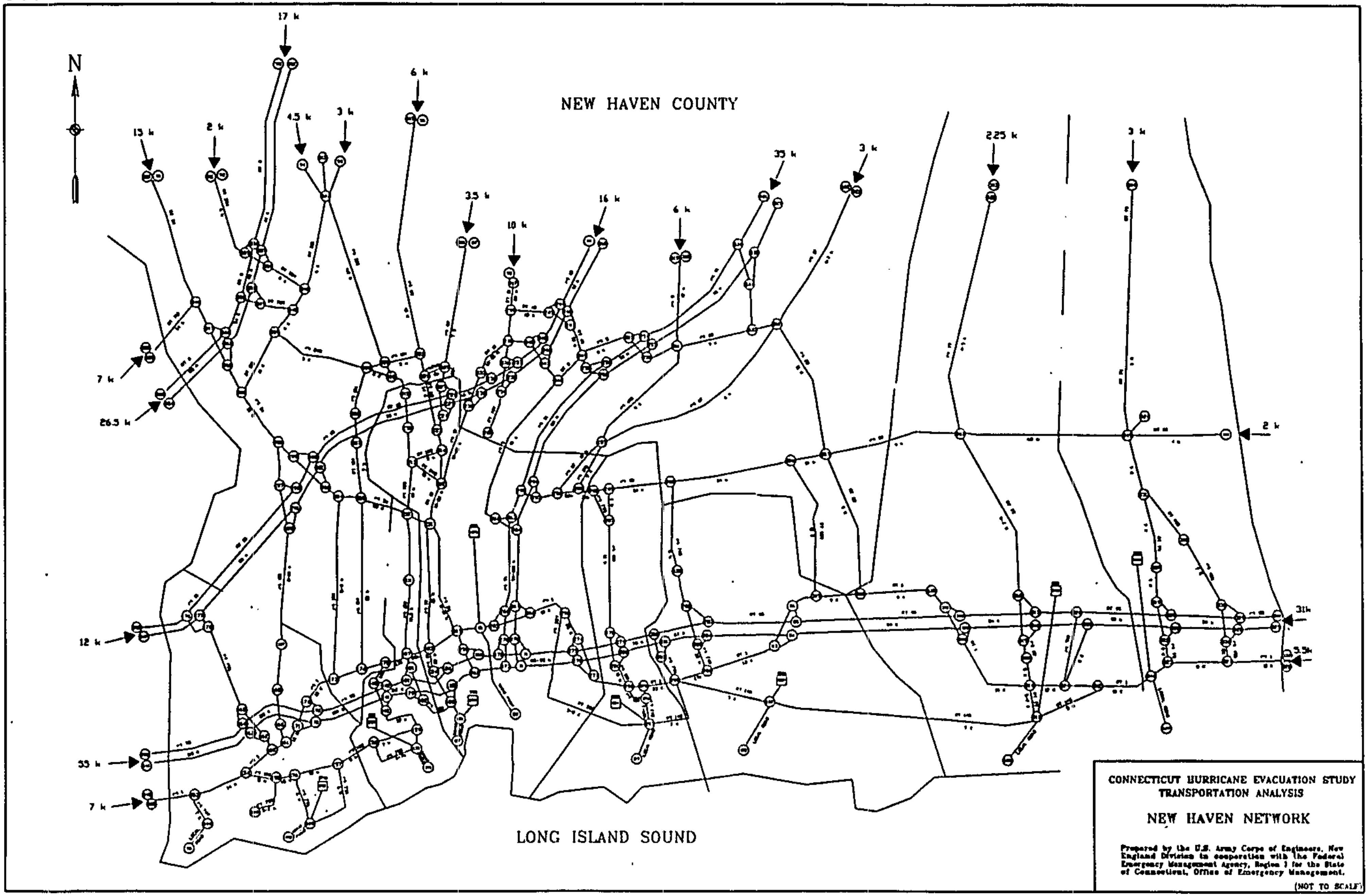
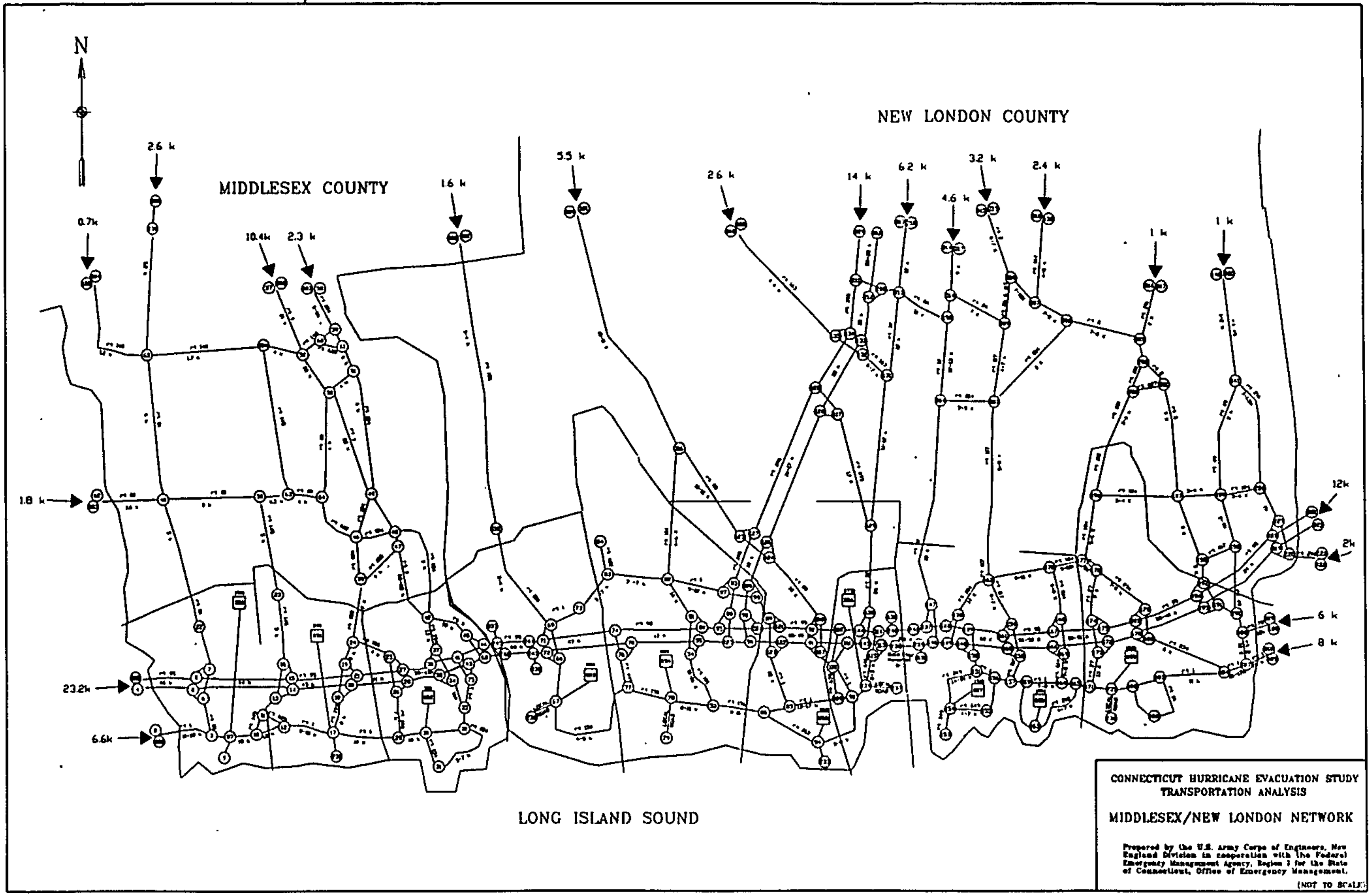


FIGURE 3 – Middlesex/New London Network



nodes at these interchanges were needed to replicate non-opposing continuous traffic flow characteristic of highway on-ramps and off-ramps.

Because areas along the immediate coast lack direct access to state routes, evacuees leaving these areas would first travel on local streets before entering onto state routes. Therefore, areas immediately along the coast, which do not have state routes passing nearby, were provided network access by links representing local streets. The information entered for these links idealized the capacities of several local streets rather than any particular street. The majority of evacuees were programmed to enter networks from local streets extending into coastal areas. However, some evacuees were assigned to enter directly onto the networks at nodes positioned along state routes near the coast.

As a starting point, intersection approaches were all initially coded as equal priority. Coding the model in this manner assumes that at signalized intersections the green time for a particular intersection approach is directly proportional to the relative amount of traffic volume from its approach, to the cumulative volume of traffic from all other approaches. In turn, this forces vehicles to compete for the right of way. However, more green time is allotted to approaches with the highest volumes. As the model was calibrated, the priorities of some intersections were adjusted to better model the actual numbers of vehicles observed to turn onto different roadways.

NETVAC2 only allows vehicles to exit networks at special nodes predesignated as sink nodes. Exits were created within each study area's interior to represent locations of available public shelters (locations are illustrated by the squares in Figures 1 through 3). At a minimum, at least one interior sink node, representing an entire community's shelter capacity, was located in each coastal community. Exterior sink nodes were positioned along the boundaries of study areas to model locations where vehicles move out of the study areas. Transportation modeling assumed only a portion of the evacuating population (defined in the Shelter Analysis in the TDR) would seek destinations at public shelter locations. All other vehicles were assumed to travel on road networks until they eventually arrived at exterior sink nodes.

2.3 MODEL CALIBRATION

Before evacuation simulations were run, each network was first calibrated for its study area. Calibration is preformed for two primary reasons. First, it establishes the route preferences that will be used by all vehicles during an evacuation simulation. Route preferences control the numbers of vehicles assigned to travel on each road. Second, calibration determines how many vehicles must be loaded at a given loading rate to achieve traffic patterns typical of a normal day. Before an evacuation takes place, the modeling methodology assumes traffic patterns of a normal day occur. Therefore, NETVAC2 was programmed to simulate normal traffic patterns at the start of all model runs. Only after a hurricane threat becomes imminent, and people begin responding to warnings, are changes in normal day traffic anticipated. The following paragraphs describe how traffic counts recorded for a normal weekday were used to calibrate each network to its study area.

The Connecticut Department of Transportation Traffic Log[6] lists the estimated average daily traffic volume (ADT) for segments of highways where significant changes in total traffic volume occur. A sample of ADT volumes along US Route 1 from the New York State line to Westport, Connecticut is shown in Figure 4. ADT volumes listed are the averages of daily traffic volumes recorded over a one year period. These values are the expected numbers of vehicles to travel on segments of US Route 1 on any given day.

The distribution of ADT over a 24-hour period varies with each hour and day of the week. In general, the percentage of ADT is usually many times greater during peak traffic periods compared with times of off-peak traffic. Figure 5 plots averages of the hourly weekday ADT volume recorded at traffic monitoring stations in Branford, East Lyme, Groton, Norwalk, and Wallingford, Connecticut along portions of US Route 1, and Interstate Routes 91 and 95. The distribution of hourly ADT at each location was found to be similar irrespective of monitoring site or direction of travel.

In Figure 5, dashed lines delineate approximate levels of ADT corresponding to off-peak, mid-peak, and peak traffic. For the most part, off-peak traffic refers to light traffic volumes that typically occur late at night or in the early morning. Mid-peak traffic refers to moderate traffic conditions similar to that generally experienced in the late morning or early afternoon on weekdays, or on weekend days. Peak traffic represents the volume of traffic that is typical during rush hour.

Although the distribution of ADT in Figure 5 may not reflect all of the local traffic patterns for each road in the study area, it does however provide a reasonable representation of how most of the vehicle trips along coastal Connecticut are distributed over a normal day. Therefore, Figure 5 was used as a basis by which all the roadways within networks were calibrated.

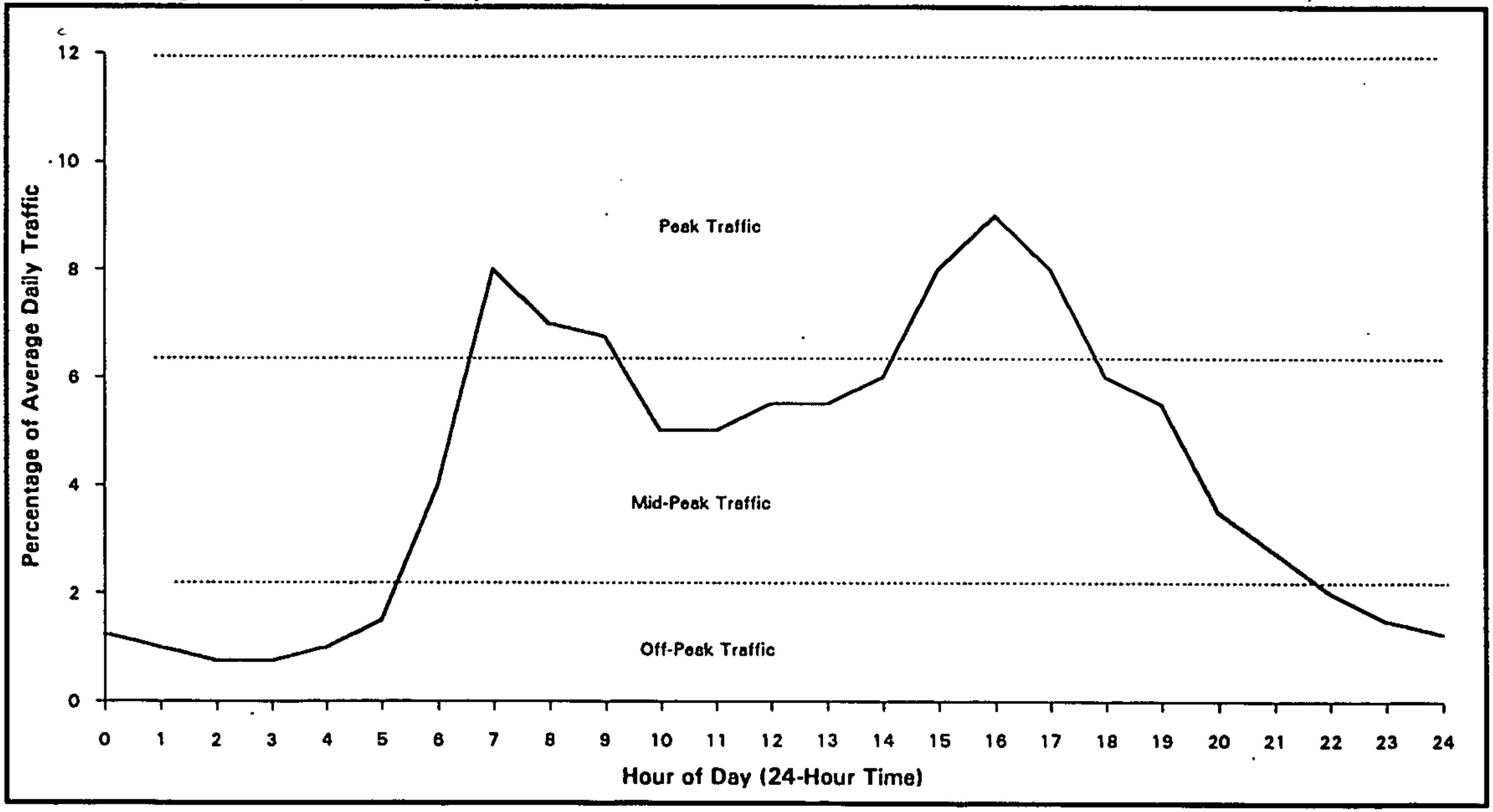
The actual unidirectional ADT at exterior node locations was entered as vehicles into networks and programmed to flow throughout each system. As simulations progressed, printouts every half hour of simulation time reported the cumulative link departures and link speeds, as well as any spillbacks and queues found at nodes. Calibration was performed using an iterative process of running NETVAC2, comparing the distribution of vehicles on major routes modeled to the distribution in Figure 5, adjusting link preference factors, and rerunning the model. The transportation methodology assumed calibration was complete when the volume of vehicles on each link approximately matched its corresponding ADT volume; and the distribution of traffic shown in Figure 5 was attained for all major routes modeled.

Figure 4 – Sample ADT Volumes for Route US 1

LOGGED DIRECTION/EAST

FROM	CUM MILES	TO	CUM MILES	SECT LENGTH	1989 ADT
NEW YORK SL	.00	BYRAM RD NB	.03	.03	26000
BYRAM RD NB	.03	FIELD POINT RD	1.74	1.71	21400
FIELD POINT RD	1.74	ORCHARD ST	3.79	2.05	23900
ORCHARD ST	3.79	RIVER RD #2	4.15	.36	17400
RIVER RD #2	4.15	EXIT FROM I-95 SB(O16)	4.85	.70	24400
EXIT FROM I-95 SB(O16)	4.85	SOUND BEACH AVE	5.05	.20	27600
SOUND BEACH AVE	5.05	GREENWICH - STAMFORD TL	5.67	.62	12200
GREENWICH - STAMFORD TL	5.67	STILLWATER AVE	6.67	1.00	12200
STILLWATER AVE	6.67	RTE 137(WASHINGTON BLVD)	6.94	.27	21000
RTE 137(WASHINGTON BLVD)	6.94	CANAL ST	7.28	.34	32300
CANAL ST	7.28	ELM ST SB	7.51	.23	22400
ELM ST SB	7.51	GLENBROOK RD	7.72	.21	28100
GLENBROOK RD	7.72	RTE 106(COURTLAND AVE)	8.60	.88	20500
RTE 106(COURTLAND AVE)	8.60	STAMFORD - DARIEN TL	8.97	.37	11900
STAMFORD - DARIEN TL	8.97	HECKER AVE	10.82	1.85	11900
HECKER AVE	10.82	EXIT FROM I-95 NB(O40A)	11.06	.24	14200
EXIT FROM I-95 NB(O40A)	11.06	EXIT FROM I-95 SB(O41)	11.24	.18	18200
EXIT FROM I-95 SB(O41)	11.24	RTE 136(TOKENEKE RD)	11.56	.32	14100
RTE 136(TOKENEKE RD)	11.56	RTE 124(MANSFIELD AVE)	11.66	.10	17400
RTE 124(MANSFIELD AVE)	11.66	ACCESS TO I-95 SB(O45A)	12.51	.85	15900
ACCESS TO I-95 SB(O45A)	12.51	EXIT FROM I-95 NB(O47A)	12.87	.36	18100
EXIT FROM I-95 NB(O47A)	12.87	DARIEN - NORWALK TL	12.88	.01	24300
DARIEN - NORWALK TL	12.88	ACCESS TO I-95 SB(O49)	14.24	1.36	24300
ACCESS TO I-95 SB(O49)	14.24	FAIRFIELD AVE	14.67	.43	19400
FAIRFIELD AVE	14.67	SR 814(CONNECTICUT AVE)	15.12	.45	14300
SR 814(CONNECTICUT AVE)	15.12	EXIT FROM US 7 SB(OO5)	15.62	.50	11800
EXIT FROM US 7 SB(OO5)	15.62	SR 809(RIVERSIDE AVE)	15.69	.07	13900
SR 809(RIVERSIDE AVE)	15.69	WILTON AVE	15.96	.27	17500
WILTON AVE	15.96	RTE 123(MAIN ST)	16.17	.21	12300
RTE 123(MAIN ST)	16.17	RTE 53(EAST AVE)	16.54	.37	15900
RTE 53(EAST AVE)	16.54	WOLFPIT AVE	17.16	.62	21900
WOLFPIT AVE	17.16	NORWALK - WESTPORT TL	17.99	.83	18500
NORWALK - WESTPORT TL	17.99	KINGS HIGHWAY NORTH #1	18.75	.76	18500
KINGS HIGHWAY NORTH #1	18.75	RTE 33(WILTON RD)	19.23	.48	13400
RTE 33(WILTON RD)	19.23	IMPERIAL AVE	19.57	.34	20000
IMPERIAL AVE	19.57	RTE 136(COMPO RD SOUTH)	19.83	.26	23700
RTE 136(COMPO RD SOUTH)	19.83	ROSEVILLE RD	20.48	.65	24600
ROSEVILLE RD	20.48	LONG LOTS RD	20.68	.20	31400
LONG LOTS RD	20.68	SSR 476(SHERWOOD ISLND CONN)	20.80	.12	25100
SSR 476(SHERWOOD ISLND CONN)	20.80	WESTPORT - FAIRFIELD TL	22.77	1.97	20000
WESTPORT - FAIRFIELD TL	22.77	ACCESS TO I-95 NB(O66)	23.44	.67	20000
ACCESS TO I-95 NB(O66)	23.44	MILL PLAIN RD	24.61	1.17	13100
MILL PLAIN RD	24.61	RTE 135(NORTH BENSON RD)	25.51	.90	17900
RTE 135(NORTH BENSON RD)	25.51	SR 771(POST RD)	25.81	.30	21000
SR 771(POST RD)	25.81	GRASMERE AVE	26.50	.69	15200

Figure 5 - Average of Hourly ADT Along Major Routes in Connecticut



Section Three
DEVELOPMENT OF TRAFFIC DATA

3.1 CLASSIFICATION OF MOTORISTS

After road networks were developed, the next steps of the analysis were to estimate the total number of vehicles that will load onto roadways, and determine the rates at which vehicles will load onto roadways over the course of an evacuation. To facilitate the development of this information, vehicles were classified as belonging to one of four major categories listed below:

(1) Surge Vulnerable Evacuees: Permanent and seasonal residents living in evacuation zones who evacuate when directed to do so by authorities.

(2) Non-Surge Vulnerable Evacuees: Permanent and seasonal residents, excluding mobile home residents, living outside evacuation zones who choose to evacuate. Most of the evacuees of this category leave their homes because of perceived dangers and not necessarily because of real flooding threats. However, in some cases, officials may deem it necessary to evacuate small groups of people who live in substandard housing units particularly vulnerable to hurricane winds, or those who live in or near areas that may be exposed to freshwater flooding.

(3) Mobile Home Evacuees: All permanent and seasonal mobile home residents of coastal communities. The analysis assumes all mobile home residents will be told to evacuate by local officials due of their high risk to strong winds from storms of even modest intensities.

(4) Background Vehicles: The population associated with all remaining vehicle trip purposes. Examples are: Trips made by people who leave work early and return home, people who travel through the region, and trips made by persons preparing for the arrival of hurricane conditions or engaged in normal activities. This traffic can also includes transit vehicles (vans/buses) used to pick up evacuees without personal transportation.

The number of vehicles assumed to participate during an evacuation from each group listed is an important factor in estimating clearance times. Fortunately, human behavioral information developed in Chapter 4, Behavioral Analysis, in the TDR, gives clear estimates of the participation that can be expected from the first three groups. The fourth group, Background Vehicles, is not addressed by the Behavioral Analysis. However, motorists belonging to this group mostly comprise of people making shopping trips or commuting, which is related to the ADT distribution shown in Figure 5. Section 4, Evacuation Scenarios, discusses how Figure 5 was used to develop background traffic distributions used during evacuation simulations.

Tables 1 and 2 list estimates made of the numbers of permanent and seasonal people who were assumed to evacuate their homes by population type for two levels of hurricane threat. Table 1 refers to evacuations for a Category 1 or Category 2 hurricane, and Table 2 gives similar estimates

TABLE 1
EVACUATING POPULATION CATEGORIES 1&2 HURRICANES

COMMUNITY	POPULATION EVACUATING SURGE AREAS	POPULATION EVACUATING MOBILE HOMES	POPULATION EVACUATING NON-SURGE AREAS	TOTAL COMMUNITY EVACUATING POPULATION
Greenwich	7,570	10	930	8,510
Stamford	3,450	30	2,080	5,560
Darien	2,810	10	290	3,110
Norwalk	7,340	90	1,330	8,760
Westport	3,880	170	370	4,420
Fairfield	9,040	10	790	9,840
Bridgeport	23,390	30	1,960	25,380
Stratford	10,700	20	680	11,400
Milford	16,530	440	500	17,470
West Haven	10,720	100	710	11,530
New Haven	15,630	20	2,040	17,690
East Haven	9,500	10	250	9,760
Branford	11,260	660	210	12,130
Guilford	5,080	50	270	5,400
Madison	3,660	10	230	3,900
Clinton	4,270	580	140	4,990
Westbrook	2,930	310	50	3,290
Old Saybrook	7,030	10	40	7,080
Old Lyme	2,940	10	100	3,050
East Lyme	4,180	10	210	4,400
Waterford	3,000	160	280	3,440
New London	3,020	20	480	3,520
Groton City	670	0	170	840
Groton Town	3,750	1,570	570	5,890
Stonington	4,650	440	220	5,310
TOTALS	177,000	4,770	14,900	196,670

TABLE 2
EVACUATING POPULATION CATEGORIES 3&4 HURRICANES

COMMUNITY	POPULATION EVACUATING SURGE AREAS	POPULATION EVACUATING MOBILE HOMES	POPULATION EVACUATING NON-SURGE AREAS	TOTAL COMMUNITY EVACUATING POPULATION
Greenwich	11,210	10	2,330	13,550
Stamford	4,160	30	5,190	9,380
Darien	3,410	10	730	4,150
Norwalk	10,960	90	3,320	14,370
Westport	5,460	170	930	6,560
Fairfield	12,880	10	1,980	14,870
Bridgeport	39,280	30	4,910	44,220
Stratford	14,010	20	1,710	15,740
Milford	22,600	440	1,260	24,300
West Haven	16,710	100	1,770	18,580
New Haven	25,810	20	5,100	30,930
East Haven	12,310	10	630	12,950
Branford	15,740	660	520	16,920
Guilford	6,590	50	660	7,300
Madison	5,020	10	570	5,600
Clinton	5,590	580	360	6,530
Westbrook	3,540	310	130	3,980
Old Saybrook	8,660	10	100	8,770
Old Lyme	3,690	10	240	3,940
East Lyme	6,710	10	510	7,230
Waterford	3,950	160	690	4,800
New London	4,440	20	1,200	5,660
Groton City	1,070	0	420	1,490
Groton Town	5,970	1,570	1,430	8,970
Stonington	5,740	440	550	6,730
TOTALS	255,510	4,770	37,240	297,520

for a Category 3 or Category 4 hurricane. Estimates were made by applying evacuation participation behavioral assumptions to community population data (see TDR).

3.2 BEHAVIORAL RESPONSE OF MOTORISTS

Perhaps one of the most critical assumptions that must be considered when estimating clearance times is the timing at which evacuees load onto roadways. Behavioral data from research obtained from past hurricane evacuations show that mobilization and actual departures of the evacuating population occur over a period of many hours and sometimes several days[7]. For Connecticut, evacuation simulations were tested for three evacuation rates that are summarized by the response curves in Figure 6. Behavioral response curves describe the percentages of the evacuating population who leave their homes and load onto roadways at hourly intervals relative to when an evacuation recommendation is disseminated to the public.

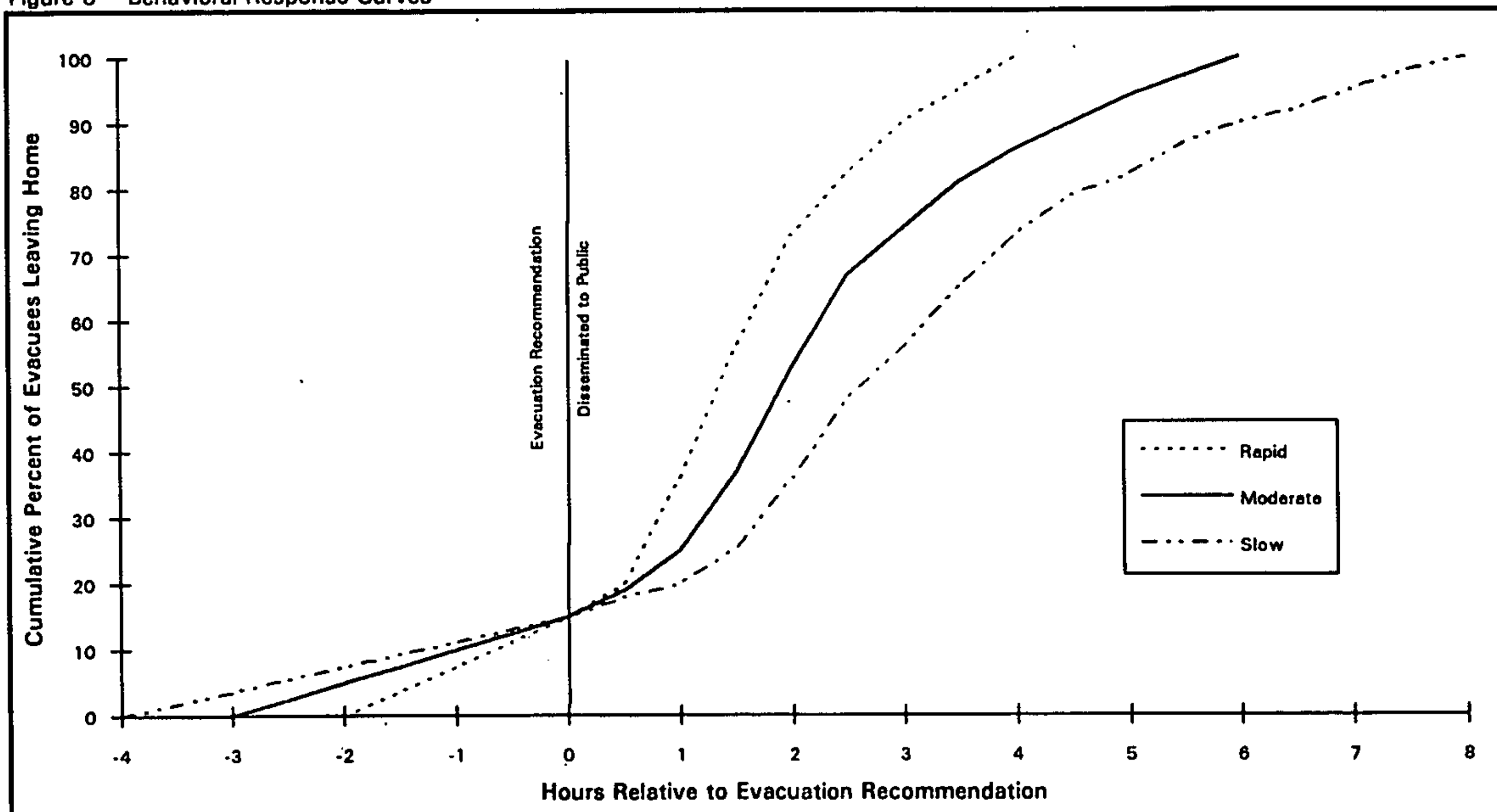
The behavioral response curves are intended to include the most probable range of public responses that will be experienced in a future hurricane evacuation. The rapid response curve depicts the quickest mobilization response by evacuating households. For analysis purposes, the rapid response curve includes two hours of response time occurring before the evacuation recommendation is disseminated to the public and four hours after it is disseminated. For the moderate response curve, three hours of response time is assumed before dissemination of the evacuation recommendation, and six hours after. The slow response curve includes four hours of response time before notification of the evacuation recommendation, and eight hours after. The public's response before evacuation accounts for people who choose to evacuate their homes before being directed to do so by authorities. Regardless of the behavioral response curve used, 85 percent of all people who will eventually leave their homes are assumed to leave after being directed to do so by officials. This is an important point because people's timeliness in responding to a hurricane evacuation is extremely dependent upon the aggressiveness of authorities to encourage them to leave[8].

3.3 VEHICLE USAGE

The behavioral analysis conducted for Connecticut[8] estimated that approximately 75 percent of the vehicles available to evacuees will be used during future evacuations. For the most part, families usually evacuate using one vehicle for fear of separation, but some households evacuate using two or more vehicles depending upon how many are available to them. Differences in vehicle ownership may vary with variations in access to public transportation, household income, and other socioeconomic characteristics of the region.

The first and second columns of Table 3 list by community the average numbers of people and cars per occupied housing unit. This information was obtained from socioeconomic data reported in

Figure 6 - Behavioral Response Curves



the 1980 census[9]. The third column of the Table gives the calculated average numbers of people that will travel in each evacuating vehicle, assuming 75 percent of the available vehicles are used. A sample calculation for Greenwich, Connecticut is shown below.

$$\frac{\text{2.63 people per occupied housing unit}}{\text{1.84 cars per housing unit x 75\%}} = \text{1.91 people per evacuating car}$$

The transportation methodology used the information in Table 3 to determine the vehicles that would load onto roadways during evacuations. The user enters the vehicle occupancy rates and the number of people assigned to enter the network at each node. NETVAC2's complimentary program, POPDIS, aggregates the population input for each entry node and in turn computes the effective average vehicle loading rates per minute to be input into NETVAC2 at network entry locations.

TABLE 3
VEHICLE USAGE BY COMMUNITY

COMMUNITY	PEOPLE PER OCCUPIED HOUSING UNIT	CARS PER OCCUPIED HOUSING UNIT	PEOPLE PER EVACUATING CAR
Greenwich	2.63	1.84	1.91
Stamford	2.58	1.58	2.18
Darien	2.84	2.03	1.87
Norwalk	2.56	1.73	1.97
Westport	2.63	2.02	1.74
Fairfield	2.76	1.94	1.90
Bridgeport	2.71	1.18	3.06
Stratford	2.56	1.73	1.97
Milford	2.65	1.83	1.93
West Haven	2.54	1.51	2.24
New Haven	2.66	1.01	3.51
East Haven	2.60	1.81	1.92
Branford	2.37	1.75	1.81
Guilford	2.76	1.98	1.86
Madison	2.78	2.01	1.84
Clinton	2.74	1.90	1.92
Westbrook	2.39	1.77	1.80
Old Saybrook	2.55	1.86	1.83
Old Lyme	2.54	2.03	1.67
East Lyme	2.79	1.90	1.96
Waterford	2.58	2.00	1.72
New London	2.66	1.23	2.88
Groton City	3.04	1.59	2.55
Groton Town	3.04	1.59	2.55
Stonington	2.41	1.76	1.83

Section Four
EVACUATION SCENARIOS

Since all hurricanes differ from one another in some respect, it becomes necessary to set forth clear assumptions about storm characteristics and evacuees' expected response before transportation modeling can begin. Not only does a storm vary in its track, intensity and size, but also in the way it is perceived by residents in potentially vulnerable areas. These factors cause a wide variance in the behavior of the vulnerable population. Even the time of day at which a storm makes landfall influences the time parameters of an evacuation response. The transportation analysis computes *clearance times* based on sets of assumed conditions and behavioral responses. It is likely that an actual storm will differ from a simulated storm for which clearance times are calculated in this report. Therefore, key input parameters were varied to derive a range of evacuation scenarios idealizing many possible situations officials may have to contend with. The three major parameters that were varied with each simulation are described below.

(1) Hurricane Severity: Storms are classified as either Categories 1&2 hurricanes, or Categories 3&4 hurricanes. Evacuating population estimates (see Tables 1 and 2) are significantly greater (approximately double) for an evacuation due to Categories 3&4 hurricanes when compared with that for Categories 1&2 hurricanes. Category 5 hurricanes were not considered because the cooler waters of the Northeast can not sustain hurricanes of this intensity.

(2) Behavioral Response: The time in which evacuees mobilize to leave their homes and enter onto the roadway system is characterized by the behavioral response curves shown in Figure 6. Behavioral response curves are defined for rapid, moderate, and slow responses.

(3) Background Traffic Condition: The traffic condition at the start of an evacuation will depend upon the time of day the evacuation begins as well as other factors that may influence initial traffic conditions. As the NETVAC2 models were run, initial traffic conditions corresponding to off-peak, mid-peak, and peak ADT levels were analyzed. Figures 7a-c plot background vehicle distributions assumed for the three conditions.

a. **Off-peak**: The off-peak traffic condition refers to light traffic volumes that typically occur late at night or in the early morning.

b. **Mid-peak**: The mid-peak traffic condition refers to moderate traffic conditions similar to that generally experienced in the late morning or early afternoon on weekdays, or on weekend days.

c. **Peak**: The peak traffic condition replicates the volume of traffic that is typical of rush hour.

As noted above, background vehicles refer to motorists who travel roadways during an evacuation with trip purposes other than for evacuating their homes. At the start of an evacuation, the number of background vehicles assumed exist on a particular road was taken as the ADT for that road on a normal day. As an evacuation progressed, the initial ADT assumed was slowly decreased until zero background vehicles were on the roads at the completion of the evacuation.

Referring to the ADT distribution shown in Figure 5, the Transportation Analysis simulated evacuations occurring coincident with rush hour by programming evacuees to load onto roadways that were initially set at peak ADT volumes. Conversely, an evacuation occurring at times of light traffic, such as late at night or in the early morning, was modeled by running the model with background vehicles initially set at off-peak ADT volumes. Simulations run with background traffic at mid-peak ADT volumes represented moderate traffic volumes typical of midmorning and mid-afternoon on weekdays or weekends.

The Transportation Analysis assumed the background distributions shown in Figures 7a-c to apply to evacuations assuming a moderate behavioral response by evacuees. Background traffic distributions used for evacuations assuming a rapid or a slow behavioral response (not shown) follow the same curves shown in Figures 7a-c. The only exception is that evacuees are programmed to load onto roadways slightly before or after background traffic starts its decline. The number of background vehicles on any roadway during a model run will vary depending upon each road's particular ADT and the hourly percentage of ADT assumed for the traffic condition modeled. A key point in using Figure 5 to derive background traffic conditions is that all traffic conditions are from actual traffic patterns observed for Connecticut rather than assumed hypothetical conditions.

Combinations of these key input parameters were used in developing 18 possible scenarios. For each of the three networks, simulations were run for evacuations assuming Categories 1&2 hurricanes and Categories 3&4 hurricanes. Initial traffic conditions imparted on the road network followed the distributions shown in Figure 7a-c for off-peak, mid-peak, and peak traffic. Evacuees entered road networks at prescribed time intervals defined by the rapid, moderate, and slow behavioral responses.

Factors such as seasonal population variations or impacts from tourism were not considered because of the negligible increases these population types have on coastal Connecticut's total population. The evacuating population used during simulations included seasonal residents as estimated from the 1990 census[10] from seasonal housing unit information. Coastal Connecticut's seasonal population was found to be less than 5 percent of its permanent population.

Figure 7a - Off-peak Background Traffic Distribution

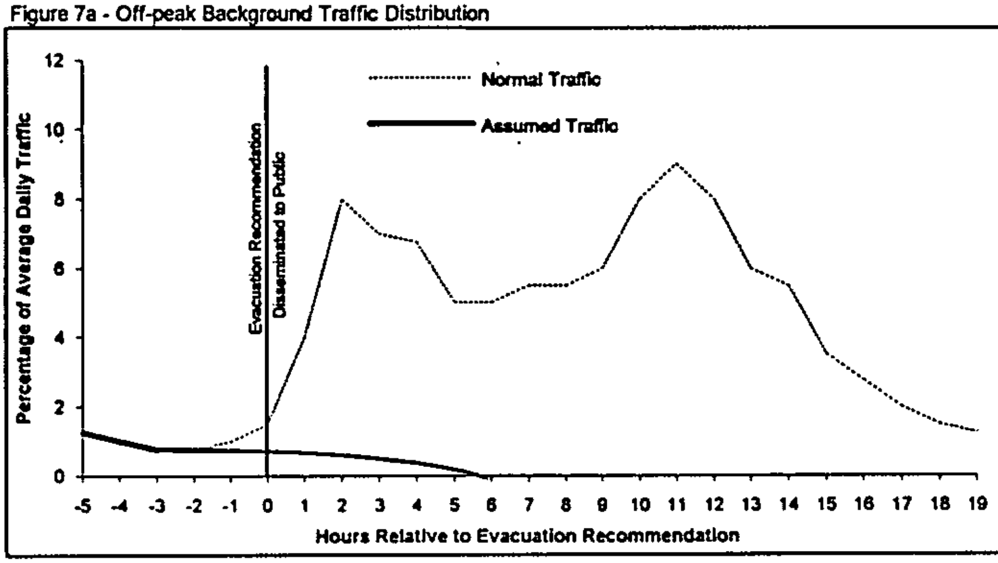


Figure 7b - Mid-peak Background Traffic Distribution

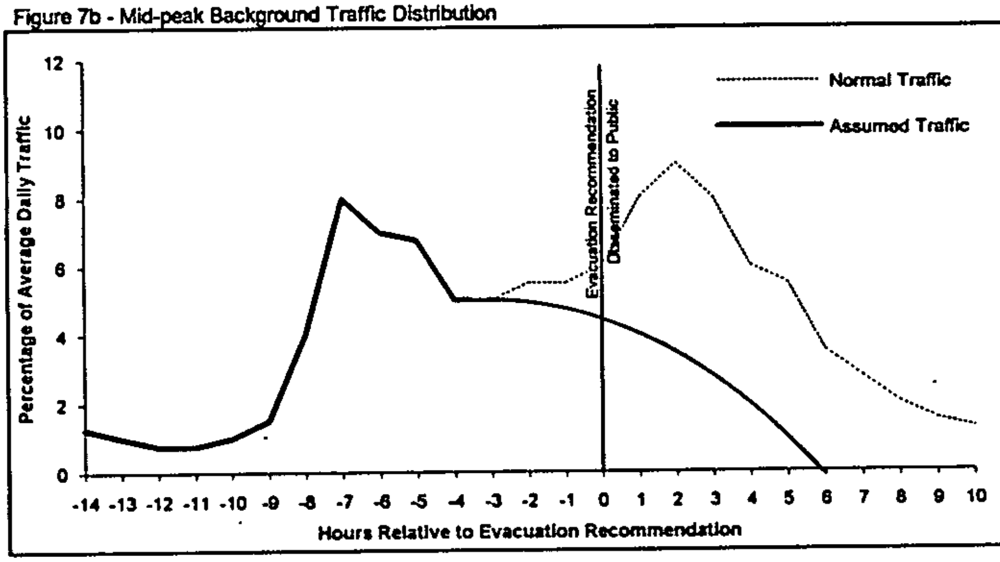
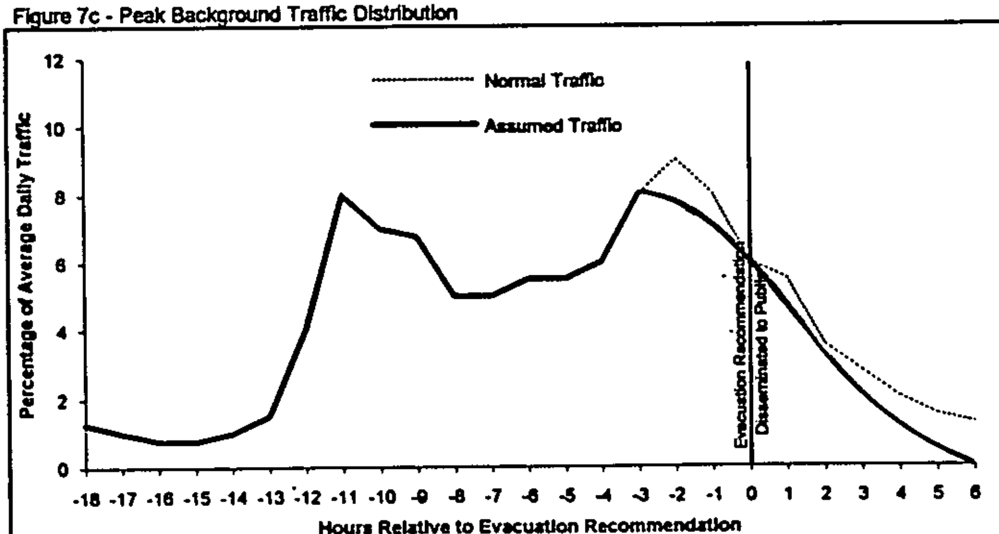


Figure 7c - Peak Background Traffic Distribution



Section Five
ANALYSIS

5.1 GENERAL

Clearance time and dissemination time are two major considerations in deciding when an evacuation recommendation should be issued. The combination of these times defines a region's total evacuation time. Clearance time begins when the public is first made aware of an evacuation and ends when the last evacuee clears the road system. This time includes the time required by evacuees to secure their homes and prepare to leave (mobilization time), the time spent by evacuees traveling along the road network (travel time), and the time lost due to traffic congestion (queuing delay time). Clearance time does not relate solely to the time any one vehicle spends traveling on the road system.

Dissemination time is the amount of time required by officials to notify the public to evacuate after the decision has been made. These values are subjective times that may differ by region depending on the communication and warning procedures utilized by State and local officials in their areas. The times calculated by the Transportation Analysis include only the clearance time component of evacuation time, and officials using this information must determine the dissemination time appropriate for their areas. Failure to add this component will underestimate evacuation times, which could result in motorists being left stranded on highways during the climax of a storm.

Evacuations must be completed before the arrival of gale force hurricane winds (34 knot/39 mph) and/or storm surge. Vehicle accidents and reduced travel speeds from inclement weather can impede traffic flows, and potentially disrupt the evacuation. Therefore, the transportation modeling assumes that evacuations will occur well enough before a hurricane to preclude possible delays caused by significant weather. Moreover, the analysis assumes that provisions would be made for removal of vehicles in distress during the evacuation. The Decision Arc Method outlined in Chapter 8, Behavioral Analysis in the TDR, explains how the clearance times, in conjunction with the dissemination times specified by officials, can be used in hurricane evacuation decision-making. The time at which gale force winds arrive has been incorporated into the decision-making process of the Decision Arc Method and therefore does not need to be factored into the calculation of clearance time.

5.2 RESULTS

NETVAC2 lists node arrivals, departures, total discharge, link speeds, and total number of vehicles on the network for each report interval specified by the user. The total number of vehicles on a network is plotted versus time to display graphically how quickly vehicles leave roadways. Figures 8a-b, 9a-b, and 10a-b are graphs plotted from analysis results for the Fairfield, New Haven, and Middlesex/New London networks under Categories 1&2 and Categories 3&4 hurricane evacuation scenarios, respectively. A moderate behavioral response curve was assumed for all scenarios presented in the Figures. In each graph, the curves depict the numbers of vehicles remaining on a network, for each hour of simulation time, for evacuations starting with off-peak, mid-peak, and peak background traffic conditions.

Evacuations were considered complete when 98 percent of all vehicles reached safe destinations. One limitation when calibrating networks to traffic patterns of a normal day is that near the completion of simulations, when most of the vehicles on the network are from evacuees rather than background traffic, vehicles adhere to turning movements of a normal day instead of seeking the most logical exit nodes. The remaining 2 percent on the network accounts for this difference. It is expected that evacuees leaving homes immediately before storm arrival will seek safe destinations of the shortest travel time. Free flow conditions are verified up to one hour before model termination to ensure the last evacuees experience light traffic free from queuing.

Tables 4 and 5 present the clearance times estimated for Fairfield, New Haven, and Middlesex/New London Counties for Categories 1&2 and 3&4 hurricanes, respectively. Times are organized by intensity of hurricane, by the rate of response of the evacuating population, and by the level of background traffic at the start of evacuations.

The clearance times were calculated assuming that each community is capable of sheltering their individual demands and no shelter capacity deficiencies exist. The Transportation Analysis tested how inadequate shelter capacity might influence clearance times using a range of different assumed shelter usage rates. Results showed that deficiencies in shelter capacity have a minimal affect on clearance time. This point is explained by the fact that the numbers of vehicles determined to travel to public shelters is very small in comparison to all vehicles on roadways. Consequently, the clearance times provided in Tables 4 and 5 are considered valid for the existing condition of deficient community shelter capacities and in the future if community sheltering capabilities improve.

The highest clearance time calculated by the Transportation Analysis was ten hours for the New Haven network, assuming a slow behavioral response by evacuees, hurricane Categories 3&4 scenario, and an evacuation occurring during rush hour (peak traffic conditions). Referring to the slow behavioral response curve in Figure 6, the last evacuees do not leave their homes until eight hours after being directed to do so. The late response by these people combined with the effects of heavy traffic from a peak traffic condition creates a substantial amount of congestion along Interstate Route 95 northbound at the junction of Interstate Route 91. Simulation results showed that traffic queuing on Interstate 95 northbound (near the interchanges with US Route 1 and Route 162) can impede people leaving Milford and West Haven exiting US Route 1 and Route 162 onto Interstate 95. Even more queuing was observed in this area when the moderate and rapid behavioral response curves were used.

Figure 8a - Fairfield Network Plotted Results for Moderate Behavioral Response (Categories 1&2 Hurricanes)

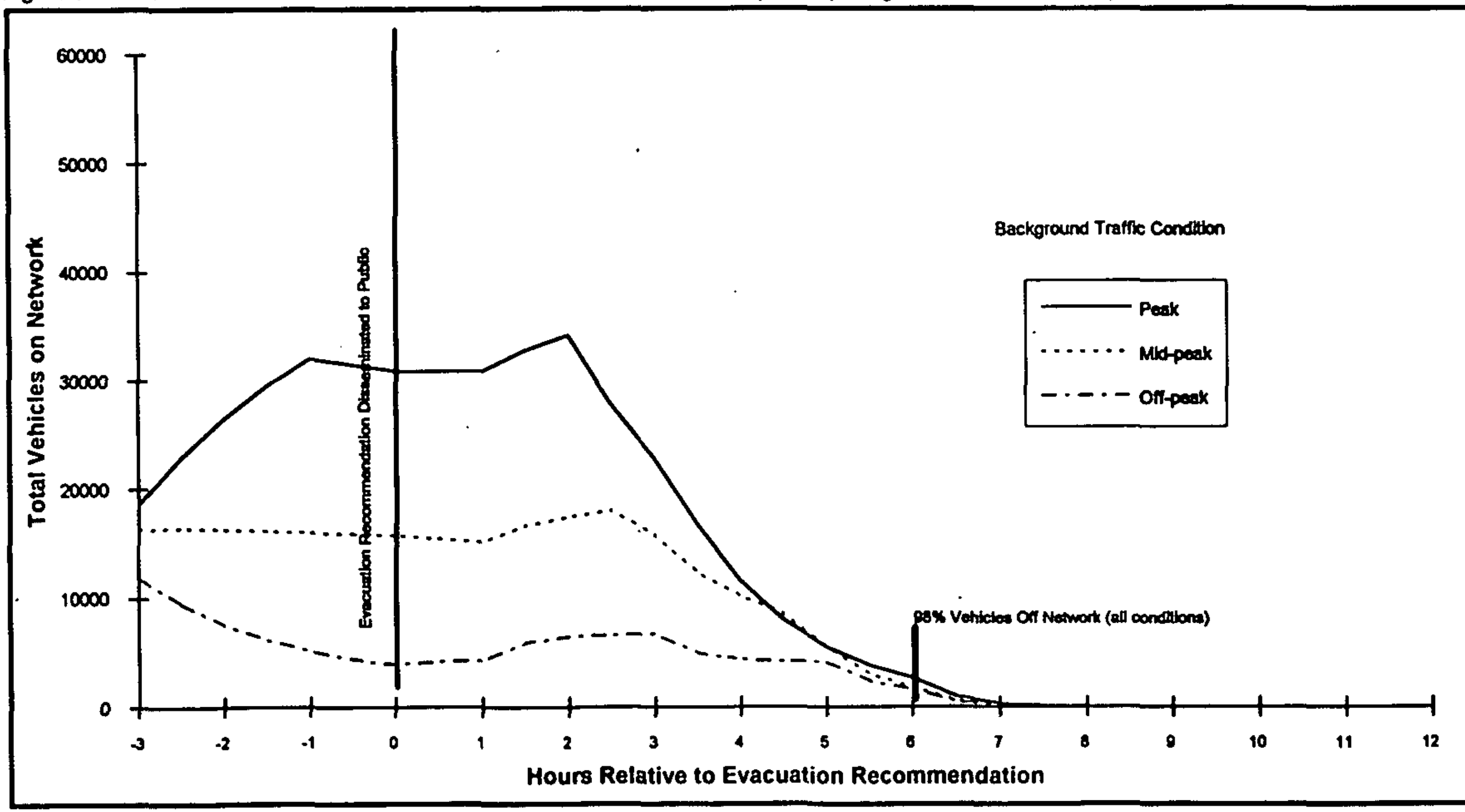


Figure 8b - Fairfield Network Plotted Results for Moderate Behavioral Response (Categories 3&4 Hurricanes)

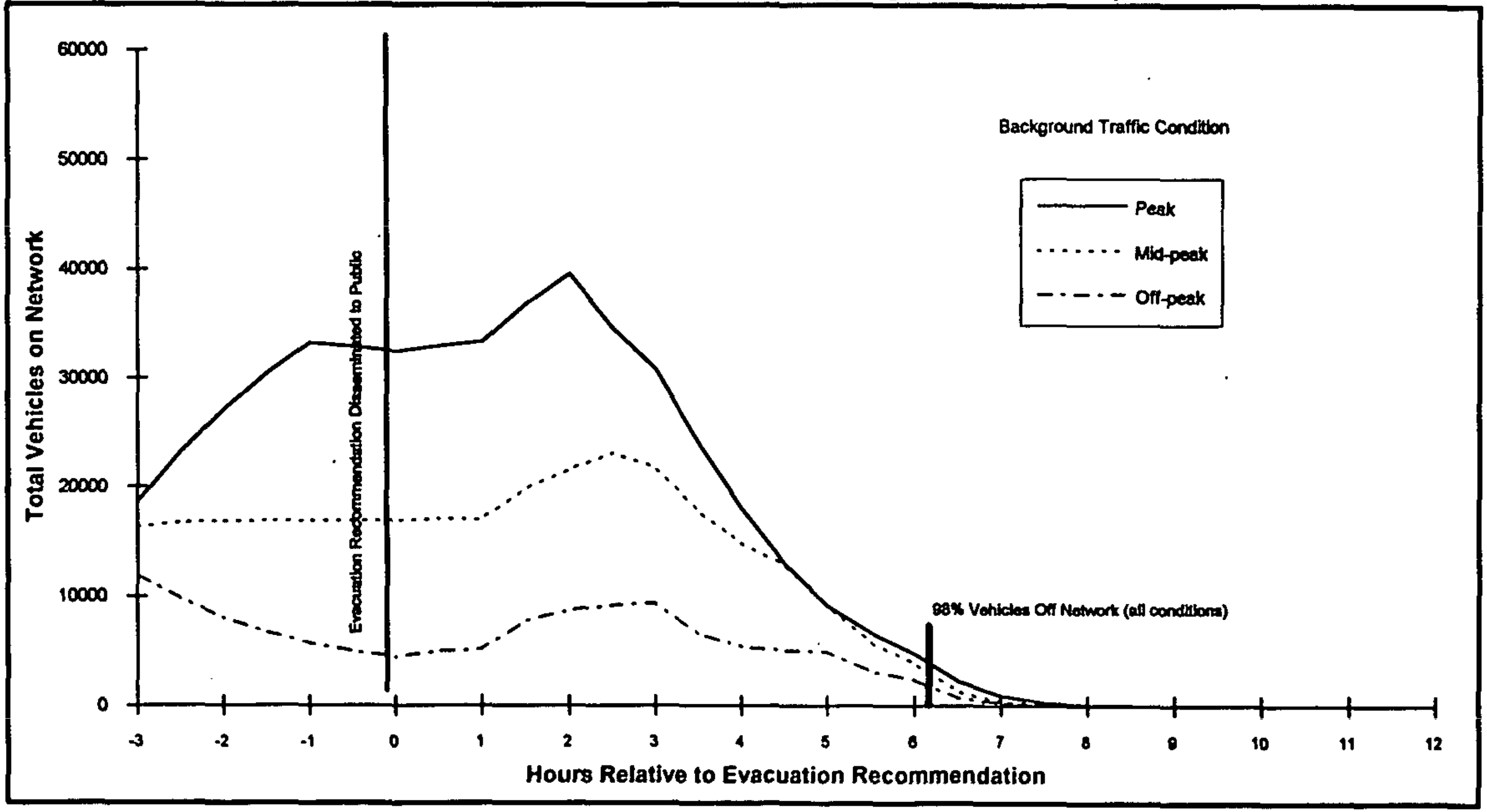


Figure 9a - New Haven Network Plotted Results for Moderate Behavioral Response (Categories 1&2 Hurricanes)

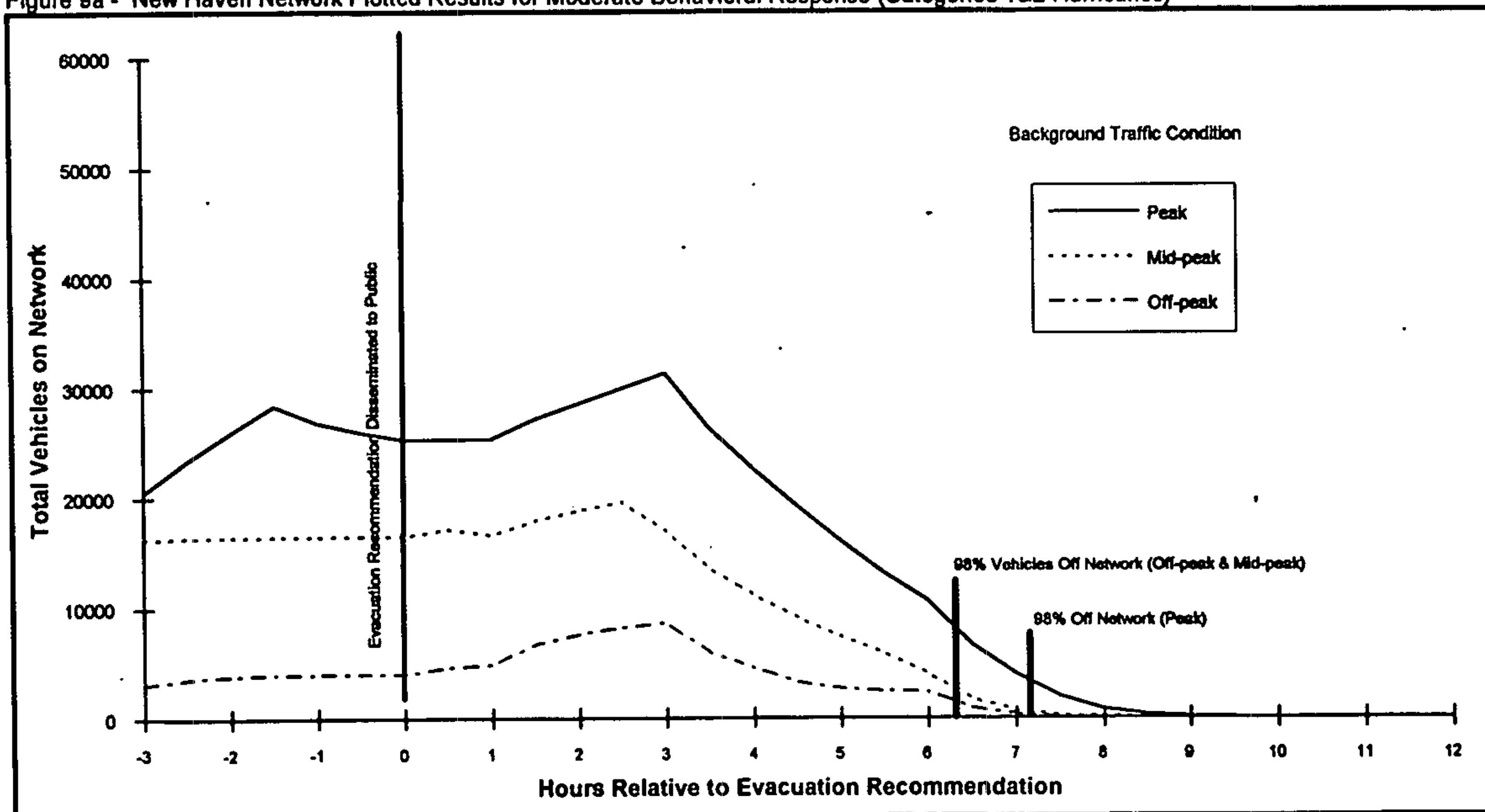


Figure 9b - New Haven Network Plotted Results for Moderate Behavioral Response (Categories 3&4 Hurricanes)

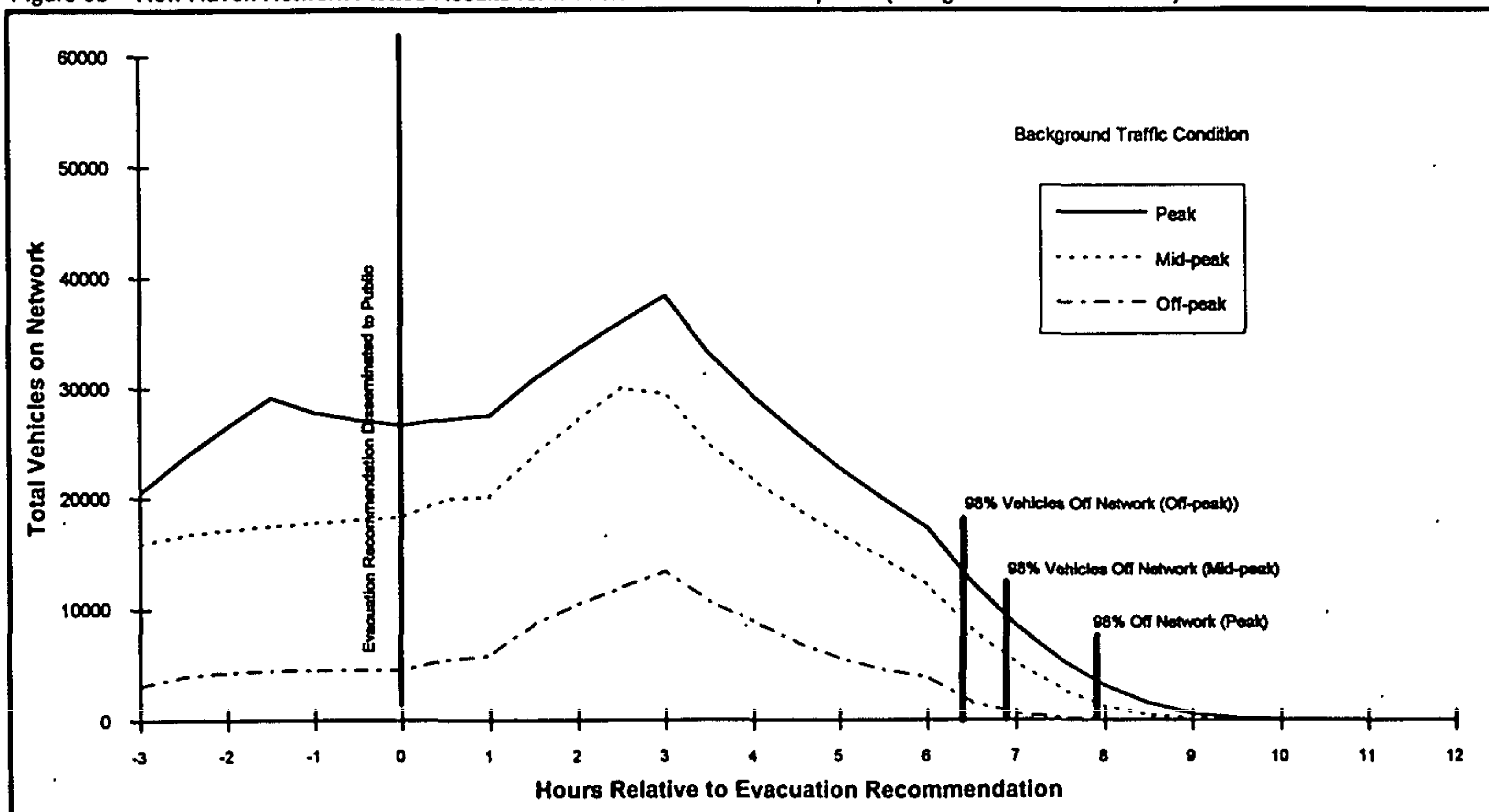


Figure 10a - Middlesex/New London Plotted Results for Moderate Behavioral Response (Categories 1&2 Hurricanes)

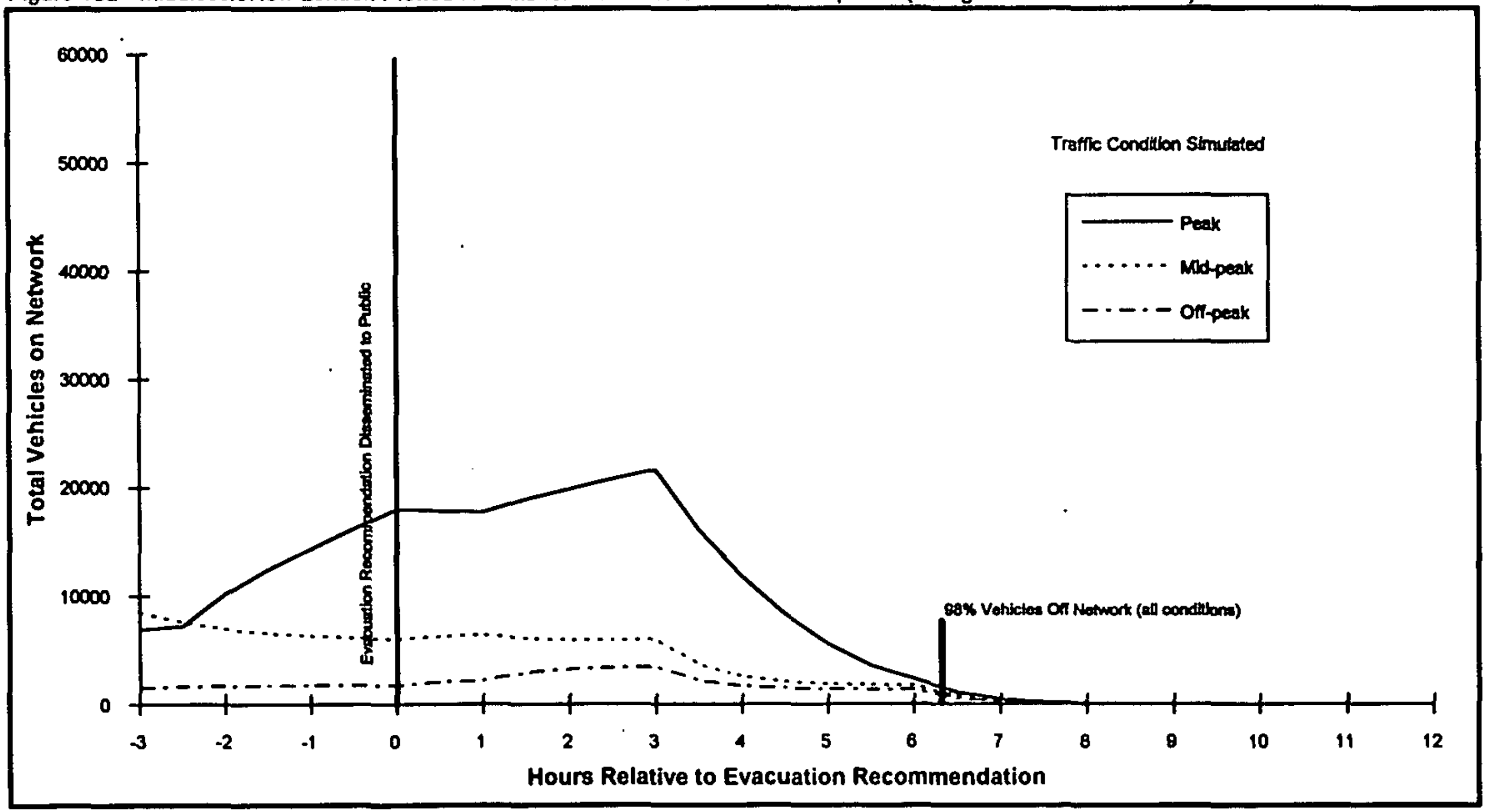
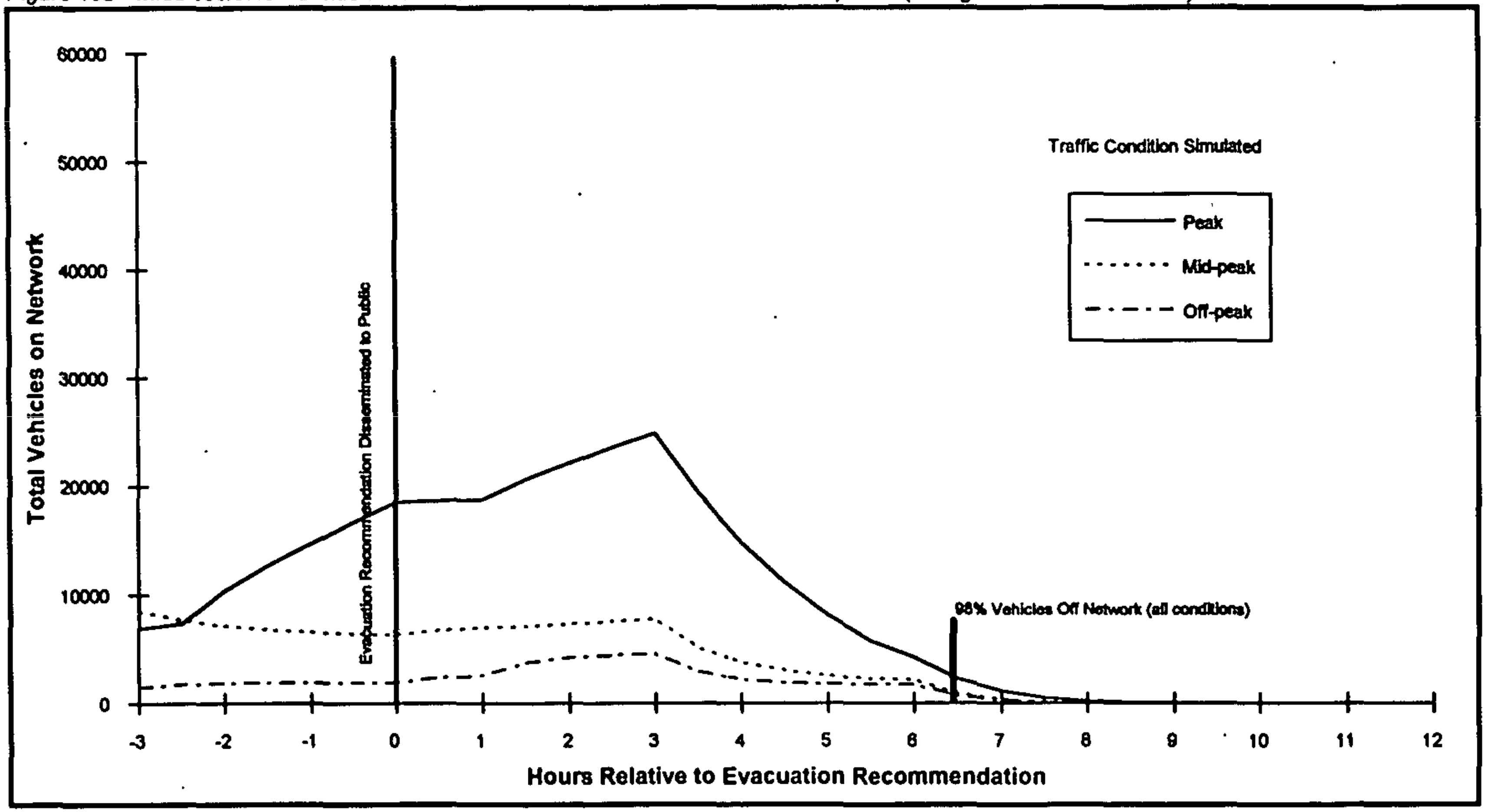


Figure 10b - Middlesex/New London Plotted Results for Moderate Behavioral Response (Categories 3&4 Hurricanes)



In these simulations, the same numbers of evacuees were loaded onto roadways over shorter periods of time thereby reducing the capacities of intersections and roadways still further.

Clearance times for the New Haven network were appreciably reduced with changes in the assumed behavioral response and background traffic condition modeled. Clearance time was estimated to be 8 hours for Categories 3&4 evacuation scenarios occurring at peak background traffic assuming a moderate behavioral response. The same scenario modeled using a mid-peak background traffic condition estimated clearance time to be 7 hours. The reduction in background vehicles under a mid-peak traffic condition resulted in a decrease in clearance time by one hour. The off-peak traffic condition further reduced clearance time by 1/2 hour for a total of 6 1/2 hours time.

For the Middlesex/New London and Fairfield networks, clearance times estimated for the moderate and slow behavioral responses are nearly independent of the background traffic condition and severity of the hurricane. Instead, clearance times are directly correlated to behavioral response. For both networks, clearance times for Categories 1&2 and 3&4 hurricanes were estimated to be 6 1/2 hours assuming a moderate behavioral response and 8 1/2 hours assuming a slow behavioral response. Referring to the behavioral response curves in Figure 6, under a moderate behavioral response, the last evacuees leave their homes 6 hours after being advised to do so. Similarly, under a slow behavioral response, the last evacuees leave 8 hours after being advised to do so. Referring to Figure 6, clearance times of 6 1/2 and 8 1/2 hours suggest that an additional 1/2 hour is required by the last evacuees leaving their homes to travel to safe destinations.

As people respond more quickly to evacuation orders, more vehicles enter onto roadways in a shorter period of time. In effect, roadway capacities are reduced, resulting in slower travel speeds, and more vehicles competing for the rights of way at intersections. The outcome of this can be seen by reviewing the clearance times estimated using the rapid behavioral response. As shown in Figure 6, a rapid behavioral response implies that the last evacuees leave their homes 4 hours after being directed to do so. Clearance times were estimated to be 4 1/2 to 5 hours for the Middlesex/New London and Fairfield networks, and range from 4 1/2 to 6 1/2 hours for the New Haven network. For the New Haven network these results suggest that the last people to evacuate will experience travel times of 1/2 to 2 1/2 hours depending upon the severity of the hurricane and the background traffic condition assumed. In the Middlesex/New London and Fairfield networks, the capacities of the roadway systems are such that in these counties the last people to evacuate will have travel times of one hour or less.

TABLE 4
SUMMARY OF CLEARANCE TIMES (Categories 1&2 Hurricanes)

	BACKGROUND TRAFFIC CONDITION		
	Off-peak	Mid-peak	Peak
FAIRFIELD COUNTY			
Rapid Response	4-1/2 hrs.	4-1/2	4-1/2
Moderate Response	6-1/2	6-1/2	6-1/2
Slow Response	8-1/2	8-1/2	8-1/2
NEW HAVEN COUNTY			
Rapid Response	4-1/2	4-1/2	6
Moderate Response	6-1/2	6-1/2	7
Slow Response	8-1/2	8-1/2	9
MIDDLESEX/NEW LONDON COUNTY			
Rapid Response	4-1/2	5	5
Moderate Response	6-1/2	6-1/2	6-1/2
Slow Response	8-1/2	8-1/2	8-1/2

TABLE 5
SUMMARY OF CLEARANCE TIMES (Categories 3&4 Hurricanes)

	BACKGROUND TRAFFIC CONDITION		
	Off-peak	Mid-peak	Peak
FAIRFIELD COUNTY			
Rapid Response	4-1/2 hrs	4-1/2	5
Moderate Response	6-1/2	6-1/2	6-1/2
Slow Response	8-1/2	8-1/2	8-1/2
NEW HAVEN COUNTY			
Rapid Response	5-1/2	6	6-1/2
Moderate Response	6-1/2	7	8
Slow Response	8-1/2	9	10
MIDDLESEX/NEW LONDON COUNTY			
Rapid Response	4-1/2	5	5
Moderate Response	6-1/2	6-1/2	6-1/2
Slow Response	8-1/2	8-1/2	8-1/2

Section Six
SUMMARY

The Connecticut Transportation Analysis is one element of a more comprehensive study entitled the Connecticut Hurricane Evacuation Study. Two major considerations in hurricane evacuation planning are: 1) how much time will it take to notify people that they must leave their homes after authorities have determined an evacuation is necessary (*dissemination time*), and 2) how much time will it take for people who evacuate their homes to travel roadways and reach safe destinations (clearance time). Evacuation time is defined as the combination of these two times. The overall objective of the Transportation Analysis is to develop estimates of clearance times under a variety of hurricane evacuation scenarios for coastal Connecticut. Clearance times and the results from other technical analyses are compiled in the Technical Data Report of the Connecticut Hurricane Evacuation Study offering State and local officials state-of-the-art information for which hurricane preparedness plans can be updated.

An evacuation simulation computer model entitled NETVAC2 was used to create a mathematical representation of the road system along coastal Connecticut. The model was calibrated to the traffic patterns of a normal day in Connecticut (a day for which no hurricanes are forecasted) using traffic and roadway data obtained from the State's Department of Transportation. Estimates of the numbers of seasonal and permanent residents that would evacuate prior to future hurricanes were made using estimates of the total vulnerable population and application of human behavioral characteristics known for the State. During evacuation simulations, evacuating vehicles were programmed to enter roadways at prescribed loading rates and compete for roadway and intersection capacities with other vehicles of different trip purposes.

Evacuation scenarios, idealizing some of the possible situations officials may be faced with while contending with the decision to issue an evacuation, were outlined. Key parameters of evacuation scenarios include the intensity or severity of the hurricane, the behavioral response of evacuees to mobilize and leave their homes, and the time of day an evacuation takes place. Because coastal Connecticut supports a large industrial base employing many people for several miles, evacuations are complicated by the presence of commuter traffic which varies at different times of the day. A total of 18 different scenarios formulated from combinations of key parameters were analyzed using NETVAC2.

For areas in Fairfield, Middlesex, and New London Counties, results showed that in situations where people left their homes over a moderate to long period of time (a period of 6 to 8 hours after being told to do so by authorities), the density and capacity of the roadway system are such that evacuating traffic is generally unrestricted. In areas in New Haven County, however, a substantial amount of congestion was realized along portions of Interstate Route 95 northbound at the junction of Interstate Route 91. Results showed that backups and slow-moving traffic on Interstate 95 northbound can impede vehicles evacuating from Milford and West Haven Connecticut exiting off of US Route 1 and Route 162 onto Interstate 95. As a result, clearance times calculated for areas in New Haven County were longer than those for other areas.

Simulations were also run assuming evacuees mobilized quickly and left their homes over a shorter period of time (a period of 4 hours after being told to do so by authorities). Under these circumstances, depending upon the initial traffic conditions at the start of an evacuation, all areas experienced varying degrees of congestion imposed by limitations of roadways to accommodate all motorists over a shorter time duration.

The lowest clearance times were calculated to be approximately 4 1/2 to 5 hours depending upon initial traffic conditions, a rapid public response, for evacuation in Fairfield, Middlesex, and New London Counties. However, in New Haven county, clearance times were as high as 6 1/2 hours assuming a rapid public response.

The highest clearance time, ten hours, was calculated for New Haven County assuming an evacuation starting concurrently with heavy rush hour traffic, a slow public response, and a severe storm evacuation scenario. Traffic conditions assumed for mid-day evacuations combined with moderate behavioral responses by the public resulted in clearance times ranging from 6 1/2 to 7 hours time in all counties independent of the severity of the hurricane considered.

As stated before, the clearance times calculated in the analysis comprise only a portion of total evacuation times. An additional time component is required for officials to effectively disseminate evacuation recommendations to the public. Dissemination time is a subjective amount of time that will differ by region depending on communication and warning procedures utilized by State and local officials in a particular area. Failure to add this component will underestimate evacuation times which could result in motorists being left stranded on highways in the climax of an actual event. Evacuation times can be determined by adding an appropriate amount of time for dissemination to the clearance times estimated for Connecticut in this analysis. This topic is discussed more fully in Chapter 8, Decision Analysis, of the Technical Data Report.

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9. US Department of Commerce, Bureau of the Census, 1980 Census of Population and Housing Summary Tape File 3A; July 1983.

10. US Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing Summary Tape File 1A, New England Division; August 1991.

Annex A: FAIRFIELD NETWORK COMPUTER INPUT FILES

Fairfield County Link Card File

2	4	24024	48	12	6	3	1	6	2	70	20	13	0	0	0	6	0	0	0
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8	112	5280	12	12	6	1	1	4	3	25	0	0	0	0	0	0	0	0	0
8	850	5000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
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25	20	3168	36	12	6	3	1	6	2	70	70	14	0	19	0	0	0	0	0

Fairfield County Link Card File

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28	111	5755	24	11	6	2	1	4	2	35	20	23	0	0	0	0	0	0	0
28	30	1000	24	12	6	2	1	4	2	35	20	31	0	29	0	0	0	0	0
28	26	1320	14	14	6	1	1	1	3	35	10	0	0	36	0	24	0	0	0
29	30	1320	14	14	6	1	1	1	3	35	12	0	0	31	0	28	0	0	0
29	25	9557	36	12	6	3	1	6	2	70	70	20	0	22	0	0	0	0	0
29	35	3802	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
30	28	1000	24	12	6	2	1	4	2	35	20	111	0	0	0	26	0	0	0
30	29	1320	14	14	6	1	1	1	3	35	10	0	0	25	0	0	0	0	0
30	31	1637	36	11	6	2	1	4	2	35	20	32	0	0	0	0	0	0	0
31	30	1637	24	11	6	2	1	4	2	35	20	28	0	0	0	29	0	0	0
31	32	1000	24	11	6	2	1	4	2	35	20	41	0	0	0	96	0	0	0
31	852	5000	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
31	151	7000	11	11	3	1	1	5	4	25	0	0	0	0	0	0	0	0	0
32	31	1000	36	11	6	2	1	4	2	35	20	30	0	0	0	0	0	0	0
32	96	16632	12	12	6	1	1	4	2	40	20	93	0	0	0	34	0	0	0
32	41	4541	22	10	6	2	1	4	2	35	20	44	0	40	0	0	0	0	0
33	94	1320	12	12	6	1	1	4	3	35	15	0	0	27	0	95	0	0	0
33	18	13886	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
33	34	4224	24	12	6	2	1	6	3	68	70	98	0	96	0	0	0	0	0
34	33	4224	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
34	98	9504	24	12	6	2	1	6	3	68	70	68	0	47	0	0	0	0	0
34	96	1320	12	12	6	1	1	4	3	35	15	0	0	32	0	93	0	0	0
35	29	3802	36	12	6	3	1	6	2	70	70	25	0	30	0	0	0	0	0
35	39	5597	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
35	37	1320	14	14	6	1	1	1	3	35	10	63	0	0	0	0	0	0	0
36	26	3802	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
36	38	5597	36	12	6	3	1	6	2	70	70	43	0	0	0	40	0	0	0
36	37	1320	14	14	6	1	1	1	3	35	10	63	0	0	0	0	0	0	0
37	35	1320	14	14	6	1	1	1	3	35	20	29	0	0	0	0	0	0	0
37	36	1320	14	14	6	1	1	1	3	35	20	38	0	0	0	0	0	0	0
37	63	10718	12	12	6	1	1	4	2	30	20	81	0	0	0	0	0	0	0
38	36	5597	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
38	40	1320	14	14	6	1	1	1	3	35	10	41	0	0	0	0	0	0	0
38	43	8659	36	12	6	3	1	6	2	70	70	46	0	0	0	45	0	0	0
39	35	5597	36	12	6	3	1	6	2	70	70	29	0	0	0	37	0	0	0
39	42	8659	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
39	40	1320	14	14	6	1	1	1	3	35	10	41	0	0	0	0	0	0	0
40	41	3062	12	12	6	1	1	4	2	35	20	0	0	44	0	32	0	0	0
40	39	1320	14	14	6	1	1	1	3	35	20	0	0	35	0	0	0	0	0
40	38	1320	14	14	6	1	1	1	3	35	20	0	0	0	0	43	0	0	0
41	40	3062	12	12	6	1	1	4	2	35	20	38	0	39	0	0	0	0	0
41	32	4541	22	10	6	2	1	4	2	35	20	31	0	96	0	0	0	0	0
41	44	7022	22	11	6	2	1	4	2	35	20	55	0	0	0	0	0	0	0
42	39	8659	36	12	6	3	1	6	2	70	70	35	0	40	0	0	0	0	0
42	45	1320	12	12	6	1	1	1	3	35	10	55	0	0	0	0	0	0	0
42	54	3010	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
43	38	8659	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
43	46	3010	36	12	6	3	1	6	2	70	70	65	0	0	0	0	0	0	0
43	45	1320	12	12	6	1	1	1	3	35	10	55	0	0	0	0	0	0	0
44	41	7022	22	11	6	2	1	4	2	35	20	32	0	0	0	40	0	0	0
44	55	2112	22	11	6	2	1	4	2	35	20	57	0	45	0	0	0	0	0
44	854	7000	10	10	1	1	1	5	4	10	0	0	0	0	0	0	0	0	0
44	63	7000	11	11	3	1	1	5	3	25	0	0	0	0	0	0	0	0	0
45	55	3062	12	12	6	1	1	4	2	40	20	0	0	57	0	44	0	0	0
45	42	1320	12	12	6	1	1	1	3	35	20	0	0	39	0	0	0	0	0
45	43	1320	12	12	6	1	1	1	3	35	20	0	0	0	0	46	0	0	0
46	43	3010	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
46	133	1848	24	14	6	1	1	6	3	50	0	0	0	0	0	0	0	0	0

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46	65	2320	36	12	6	3	1	6	2	70	20	76	0	0	0	132	0	0	0
47	98	1320	12	12	6	1	1	4	3	35	20	0	0	68	0	0	0	0	0
47	99	1426	12	12	6	1	1	4	2	40	20	48	0	0	0	97	0	0	0
47	66	6970	12	12	6	1	1	4	2	40	20	71	0	0	0	0	0	0	0
48	50	2904	12	12	6	1	1	4	3	45	20	0	0	806	0	49	0	0	0
48	807	14256	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
48	124	14256	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
48	125	26717	12	11	6	1	1	4	3	45	20	0	0	129	0	808	0	0	0
48	99	9029	12	12	6	1	1	4	3	45	20	47	0	97	0	0	0	0	0
49	50	3274	24	12	6	1	1	4	3	45	20	806	0	48	0	0	0	0	0
49	95	9134	12	12	6	1	1	4	3	45	20	94	0	0	0	89	0	0	0
49	93	6653	12	11	6	1	1	4	2	40	20	96	0	92	0	0	0	0	0
50	123	10982	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
50	806	10982	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
50	48	2904	24	12	6	1	1	4	3	45	20	125	0	99	0	807	0	0	0
50	49	3274	12	12	6	1	1	4	3	45	20	95	0	0	0	93	0	0	0
51	85	24024	12	12	6	1	1	4	3	45	20	90	0	84	0	0	0	0	0
52	87	25186	12	12	6	1	1	4	3	45	20	91	0	86	0	0	0	0	0
53	54	2320	36	12	6	3	1	6	2	70	70	42	0	0	0	0	0	0	0
53	132	1848	24	14	6	1	1	6	3	50	20	56	0	0	0	0	0	0	0
53	75	12038	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
54	42	3010	36	12	6	3	1	6	2	70	20	39	0	45	0	0	0	0	0
54	133	1848	24	14	6	1	1	6	3	50	0	0	0	0	0	0	0	0	0
54	53	2320	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
55	44	2112	22	11	6	2	1	4	2	35	20	41	0	0	0	0	0	0	0
55	45	3062	12	12	6	1	1	4	2	40	20	43	0	42	0	0	0	0	0
55	57	7181	22	11	6	2	1	4	2	35	20	131	0	0	0	58	0	0	0
56	60	12144	36	12	6	3	1	6	2	68	20	62	0	61	0	0	0	0	0
56	132	5122	36	12	6	3	1	6	2	68	0	0	0	0	0	0	0	0	0
56	131	1109	24	14	6	1	1	1	3	35	28	0	0	57	0	71	0	0	0
57	55	7181	22	11	6	2	1	4	2	35	20	44	0	0	0	45	0	0	0
57	131	1267	22	11	6	2	1	4	2	35	20	71	0	0	0	56	0	0	0
57	58	1109	12	12	6	1	1	1	3	35	14	0	0	133	0	0	0	0	0
58	59	12144	36	12	6	3	1	6	2	68	0	0	0	0	0	0	0	0	0
58	57	1109	24	14	6	1	1	1	3	35	30	0	0	55	0	131	0	0	0
58	133	5122	36	12	6	3	1	6	2	68	20	46	0	54	0	0	0	0	0
59	70	739	36	12	6	3	1	6	2	68	20	0	0	0	0	0	0	0	0
59	58	12144	36	12	6	3	1	6	2	68	20	133	0	57	0	0	0	0	0
59	68	1584	24	14	6	1	1	1	3	50	20	0	0	61	0	0	0	0	0
60	62	739	36	12	6	3	1	6	2	68	20	64	0	69	0	0	0	0	0
60	61	1584	24	14	6	1	1	1	3	50	20	108	0	0	0	0	0	0	0
60	56	12144	36	12	6	3	1	6	2	68	0	0	0	0	0	0	0	0	0
61	108	15365	24	12	6	2	1	6	3	68	40	115	0	110	0	0	0	0	0
61	68	792	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
61	60	1584	24	14	6	1	1	1	3	50	15	62	0	0	0	0	0	0	0
62	64	1584	12	12	6	1	1	1	4	45	20	122	0	0	0	0	0	0	0
62	69	1584	24	14	6	1	1	1	3	50	40	67	0	0	0	0	0	0	0
62	60	739	36	12	6	3	1	6	2	68	0	0	0	0	0	0	0	0	0
63	81	31363	12	12	6	1	1	4	2	30	20	80	0	0	0	78	0	0	0
63	37	10718	12	12	6	1	1	4	2	30	20	35	0	36	0	0	0	0	0
63	44	7000	36	11	3	1	1	5	3	25	0	854	0	55	0	41	0	0	0
64	122	12830	36	12	6	3	1	4	3	45	20	128	0	72	0	0	0	0	0
64	62	1584	12	12	6	1	1	1	4	45	0	0	0	0	0	0	0	0	0
64	70	1584	12	12	6	1	1	1	4	45	20	59	0	67	0	0	0	0	0
65	46	2320	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
65	132	1848	24	14	6	1	1	6	3	50	20	56	0	0	0	0	0	0	0
65	76	12038	36	12	6	3	1	6	2	70	70	78	0	0	0	77	0	0	0
66	47	6970	12	12	6	1	1	4	2	40	20	99	0	0	0	98	0	0	0
66	71	5280	12	12	6	1	1	4	2	40	20	0	0	131	0	74	0	0	0
67	97	9029	24	12	6	2	1	6	3	68	40	92	0	99	0	0	0	0	0
67	70	1584	24	14	6	1	1	1	3	50	15	0	0	59	0	0	0	0	0
67	69	900	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
68	98	9029	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
69	61	900	24	12	6	2	1	6	3	68	40	109	0	60	0	0	0	0	0
68	59	1584	24	14	6	1	1	1	3	50	16	0	0	58	0	0	0	0	0

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69	67	900	24	12	6	2	1	6	3	68	40	97	0	70	0	0	0	0	0
69	62	1584	24	14	6	1	1	1	3	50	9	64	0	0	0	0	0	0	0
69	109	15365	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
70	64	1584	12	12	6	1	1	1	4	45	20	0	0	0	0	0	0	0	0
70	67	1584	24	14	6	1	1	1	3	50	20	0	0	97	0	0	0	0	0
70	59	900	12	12	6	3	1	6	2	68	20	58	0	68	0	0	0	0	0
71	66	5280	12	12	6	1	1	4	2	40	20	47	0	0	0	0	0	0	0
71	131	1690	22	11	6	2	1	4	2	35	20	57	0	56	0	0	0	0	0
71	74	1954	22	11	6	2	1	4	2	35	20	82	0	0	0	72	0	0	0
72	74	20645	12	11	6	1	1	4	2	40	20	0	0	71	0	82	0	0	0
72	122	6547	12	12	6	1	1	4	3	45	20	0	0	128	0	64	0	0	0
72	121	6706	11	11	6	1	1	4	3	40	20	0	0	120	0	128	0	0	0
72	107	6072	12	12	6	1	1	4	3	45	20	110	0	109	0	0	0	0	0
73	106	8448	11	11	6	1	1	4	2	40	12	116	0	0	0	100	0	0	0
73	82	3274	33	10	6	2	1	4	2	35	20	74	0	100	0	77	0	0	0
73	80	10507	12	12	6	1	1	4	2	35	12	81	0	79	0	0	0	0	0
73	114	7181	22	11	6	2	1	4	2	35	20	135	0	0	0	0	0	0	0
74	72	20645	24	11	6	1	1	4	2	40	20	121	0	107	0	122	0	0	0
74	71	1954	22	11	6	2	1	4	2	35	20	131	0	66	0	0	0	0	0
74	82	14150	36	12	6	2	1	4	2	35	20	73	0	77	0	100	0	0	0
75	53	12038	36	12	6	3	1	6	2	70	70	54	0	132	0	0	0	0	0
75	77	1320	12	12	6	1	1	1	3	35	10	82	0	0	0	0	0	0	0
75	79	3168	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
76	65	12038	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
76	78	3168	36	12	6	3	1	6	2	70	70	130	0	81	0	0	0	0	0
76	77	1320	12	12	6	1	1	1	3	35	10	82	0	0	0	0	0	0	0
77	82	8448	24	12	6	1	1	4	2	40	20	100	0	73	0	74	0	0	0
77	75	1320	12	12	6	1	1	1	3	35	20	53	0	0	0	0	0	0	0
77	76	1320	12	12	6	1	1	1	3	35	20	78	0	0	0	0	0	0	0
78	76	3168	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
78	81	1320	12	12	6	1	1	1	3	35	10	0	0	63	0	80	0	0	0
78	130	25502	36	12	6	3	1	6	2	70	70	137	0	136	0	0	0	0	0
79	75	3168	36	12	6	3	1	6	2	70	70	53	0	77	0	0	0	0	0
79	88	25502	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
79	80	1320	12	12	6	1	1	1	3	35	10	0	0	81	0	73	0	0	0
80	79	1320	12	12	6	1	1	1	3	35	20	75	0	0	0	0	0	0	0
80	81	1109	12	12	6	1	1	4	2	35	20	63	0	78	0	0	0	0	0
80	73	10507	24	12	6	1	1	4	2	35	20	106	0	114	0	82	0	0	0
81	80	1109	12	12	6	1	1	4	2	35	20	73	0	0	0	79	0	0	0
81	78	1320	12	12	6	1	1	1	3	35	20	130	0	0	0	0	0	0	0
81	63	31363	12	12	6	1	1	4	2	30	20	37	0	0	0	0	0	0	0
82	77	8448	12	12	6	1	1	4	2	40	20	76	0	75	0	0	0	0	0
82	74	14150	24	12	6	2	1	4	2	35	20	71	0	72	0	0	0	0	0
82	100	2165	12	12	6	1	1	4	2	40	20	110	0	106	0	0	0	0	0
82	73	3274	33	10	6	2	1	4	2	35	20	114	0	80	0	106	0	0	0
83	803	16896	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
83	84	34214	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
84	83	34214	24	12	6	2	1	6	3	68	70	803	0	0	0	0	0	0	0
84	85	1320	12	12	6	1	1	1	3	35	15	0	0	90	0	804	0	0	0
84	86	4805	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
85	51	24024	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
85	804	24024	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
85	84	1320	12	12	6	1	1	1	3	35	20	83	0	0	0	0	0	0	0
85	90	1109	12	12	6	1	1	4	3	45	20	16	0	17	0	0	0	0	0
86	84	4805	24	12	6	2	1	6	3	68	70	83	0	85	0	0	0	0	0
86	87	1320	12	12	6	1	1	1	3	35	15	0	0	91	0	805	0	0	0
86	89	13896	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
87	52	25186	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
87	805	25186	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
87	86	1320	12	12	6	1	1	1	3	35	20	84	0	0	0	0	0	0	0
87	91	1109	12	12	6	1	1	4	3	45	20	16	0	18	0	0	0	0	0
88	79	25502	36	12	6	3	1	6	2	70	70	75	0	80	0	0	0	0	0
88	135	1320	12	12	6	1	1	1	3	35	12	0	0	136	0	114	0	0	0
88	139	10507	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
89	92	4224	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0

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89	95	1320	12	12	6	1	1	4	3	35	15	0	0	49	0	94	0	0	0
89	86	13886	24	12	6	2	1	6	3	68	70	84	0	87	0	0	0	0	0
90	17	1320	12	12	6	1	1	1	3	35	20	18	0	0	0	0	0	0	0
90	85	1109	12	12	6	1	1	4	3	40	20	804	0	0	0	84	0	0	0
90	16	11986	12	12	6	1	1	4	3	40	20	15	0	0	0	91	0	0	0
91	87	1109	12	12	6	1	1	4	3	40	20	805	0	0	0	86	0	0	0
91	18	1320	12	12	6	1	1	1	3	35	20	33	0	0	0	0	0	0	0
91	16	14784	12	12	6	1	1	4	3	40	20	15	0	90	0	0	0	0	0
92	89	4224	24	12	6	2	1	6	3	68	70	86	0	95	0	0	0	0	0
92	93	1320	12	12	6	1	1	4	3	35	15	0	0	96	0	49	0	0	0
92	97	9504	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
93	49	6653	12	11	6	1	1	4	2	40	20	50	0	0	0	95	0	0	0
93	92	1320	12	12	6	1	1	4	3	35	20	89	0	0	0	0	0	0	0
93	96	739	12	12	6	1	1	4	2	40	20	32	0	34	0	0	0	0	0
94	95	634	12	12	6	1	1	4	2	40	20	49	0	89	0	0	0	0	0
94	33	1320	12	12	6	1	1	4	3	35	20	34	0	0	0	0	0	0	0
94	27	17688	12	12	6	1	1	4	2	40	20	22	0	0	0	0	0	0	0
95	49	9134	12	12	6	1	1	4	3	45	20	50	0	93	0	0	0	0	0
95	89	1320	12	12	6	1	1	4	3	35	20	86	0	0	0	0	0	0	0
95	94	634	12	12	6	1	1	4	2	40	20	27	0	0	0	33	0	0	0
96	93	739	12	12	6	1	1	4	2	40	20	49	0	0	0	92	0	0	0
96	34	1320	12	12	6	1	1	4	3	35	20	98	0	0	0	0	0	0	0
96	32	16632	12	12	6	1	1	4	2	40	20	0	0	31	0	41	0	0	0
97	92	9504	24	12	6	2	1	6	3	68	70	89	0	93	0	0	0	0	0
97	99	1320	12	12	6	1	1	4	3	35	15	0	0	47	0	48	0	0	0
97	67	9029	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
98	34	9504	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
98	68	9029	24	12	6	2	1	6	3	68	70	61	0	59	0	0	0	0	0
98	47	1320	12	12	6	1	1	4	3	35	18	0	0	66	0	99	0	0	0
99	48	9029	24	12	6	1	1	4	3	45	20	807	0	125	0	50	0	0	0
99	97	1320	12	12	6	1	1	4	3	35	20	92	0	0	0	0	0	0	0
99	47	1426	12	12	6	1	1	4	2	40	20	66	0	98	0	0	0	0	0
100	110	6758	12	12	6	1	1	4	3	40	20	107	0	0	0	108	0	0	0
100	106	4805	12	12	6	1	1	4	2	40	20	0	0	73	0	116	0	0	0
100	82	2165	24	12	6	1	1	4	2	40	20	77	0	74	0	73	0	0	0
101	238	13200	12	12	6	1	1	4	3	40	20	237	0	236	0	0	0	0	0
102	273	8026	12	12	6	1	1	4	3	40	20	272	0	0	0	271	0	0	0
103	114	7000	11	11	3	1	1	5	3	25	100	855	0	0	0	0	0	0	0
104	189	7000	33	11	3	1	1	5	3	25	100	857	0	0	0	0	0	0	0
106	100	4805	12	12	6	1	1	4	2	40	20	0	0	110	0	82	0	0	0
106	116	1584	12	12	6	1	1	4	2	40	20	169	0	0	0	118	0	0	0
106	73	8448	22	11	6	1	1	4	2	40	20	80	0	82	0	114	0	0	0
107	72	6072	24	12	6	1	1	4	3	45	20	122	0	121	0	74	0	0	0
107	109	1109	12	12	6	1	1	1	3	35	20	69	0	0	0	0	0	0	0
107	110	1056	12	12	6	1	1	4	3	40	20	0	0	108	0	0	0	0	0
108	61	15365	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
108	115	5174	24	12	6	2	1	6	3	68	65	166	0	118	0	0	0	0	0
108	110	1109	12	12	6	1	1	1	3	35	10	0	0	100	0	107	0	0	0
109	117	5174	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
109	69	15365	24	12	6	2	1	6	3	68	65	67	0	62	0	0	0	0	0
109	107	1109	12	12	6	1	1	1	3	35	10	0	0	110	0	72	0	0	0
110	107	1056	12	12	6	1	1	4	3	40	20	72	0	0	0	109	0	0	0
110	108	1109	12	12	6	1	1	1	3	35	20	115	0	0	0	0	0	0	0
110	100	6758	12	12	6	1	1	4	3	40	20	92	0	0	0	105	0	0	0
111	23	6600	24	11	6	2	1	4	2	35	20	19	0	21	0	0	0	0	0
111	28	5755	24	11	6	2	1	4	2	35	20	30	0	26	0	0	0	0	0
112	8	5280	24	12	6	1	1	4	2	25	100	850	0	0	0	0	0	0	0
113	258	10560	24	12	6	1	1	4	2	35	20	257	0	0	0	254	0	0	0
113	259	19061	24	12	6	1	1	4	2	35	20	260	0	264	0	253	0	0	0
114	73	7181	33	11	6	2	1	4	2	35	20	92	0	105	0	80	0	0	0
114	135	11827	24	12	6	2	1	4	2	35	20	136	0	88	0	0	0	0	0
114	855	7000	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
114	103	7000	11	11	3	1	1	5	3	25	0	0	0	0	0	0	0	0	0
115	108	5174	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
115	118	1109	12	12	6	1	1	1	3	35	20	0	0	116	0	119	0	0	0

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115	166	28512	24	12	6	2	1	6	3	68	70	177	0	165	0	0	0	0	0
116	169	27614	22	11	6	1	1	4	3	40	20	170	0	168	0	812	0	0	0
116	118	686	12	12	6	1	1	4	2	40	20	119	0	0	0	115	0	0	0
116	106	1584	12	12	6	1	1	4	2	40	20	73	0	100	0	0	0	0	0
117	109	5174	24	12	6	2	1	6	3	68	70	69	0	107	0	0	0	0	0
117	119	1109	12	12	6	1	1	1	3	35	20	0	0	118	0	120	0	0	0
117	167	28512	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
118	119	739	12	12	6	1	1	4	3	40	20	120	0	0	0	117	0	0	0
118	115	1109	12	12	6	1	1	1	3	35	20	166	0	0	0	0	0	0	0
118	116	686	12	12	6	1	1	4	2	40	20	106	0	0	0	169	0	0	0
119	120	14942	12	12	6	1	1	4	3	45	20	127	0	0	0	121	0	0	0
119	117	1109	12	12	6	1	1	1	3	35	20	109	0	0	0	0	0	0	0
119	118	739	12	12	6	1	1	4	3	40	20	116	0	115	0	0	0	0	0
120	121	6811	10	9	6	1	1	4	3	35	20	128	0	0	0	72	0	0	0
120	127	4330	12	12	6	1	1	4	3	45	20	810	0	811	0	0	0	0	0
120	119	14942	12	12	6	1	1	4	3	45	20	118	0	117	0	0	0	0	0
121	128	10560	12	11	6	1	1	4	3	45	20	0	0	129	0	122	0	0	0
121	72	6706	22	11	6	1	1	4	3	40	20	74	0	122	0	107	0	0	0
121	120	6811	10	9	6	1	1	4	3	35	20	0	0	119	0	127	0	0	0
122	128	4752	24	12	6	2	1	7	3	45	40	129	0	121	0	0	0	0	0
122	72	6547	24	12	6	1	1	4	3	45	20	107	0	74	0	121	0	0	0
122	64	12830	36	12	6	3	1	4	3	45	40	70	0	0	0	0	0	0	0
123	50	10982	12	12	6	1	1	4	3	45	20	49	0	0	0	48	0	0	0
124	48	14256	24	12	6	1	1	4	3	45	20	99	0	50	0	125	0	0	0
125	126	10296	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
125	808	10296	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
125	48	26717	24	11	6	1	1	4	3	45	20	50	0	807	0	99	0	0	0
125	129	2006	12	11	6	1	1	4	3	45	20	0	0	128	0	809	0	0	0
126	125	10296	12	12	6	1	1	4	3	45	20	0	0	48	0	129	0	0	0
127	172	11035	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
127	810	11035	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
127	173	9029	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
127	811	9029	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
127	120	4330	12	12	6	1	1	4	3	45	20	119	0	121	0	0	0	0	0
128	129	1954	12	11	6	1	1	7	3	45	40	809	0	0	0	125	0	0	0
128	121	10560	12	11	6	1	1	4	3	45	20	120	0	72	0	0	0	0	0
128	122	4752	24	12	6	2	1	7	3	45	40	64	0	0	0	72	0	0	0
129	809	8184	12	12	6	1	1	7	3	45	55	0	0	0	0	0	0	0	0
129	134	8184	12	12	6	1	1	7	3	45	20	0	0	0	0	0	0	0	0
129	125	2006	12	11	6	1	1	4	3	45	20	0	0	808	0	48	0	0	0
129	128	1954	12	11	6	1	1	7	3	45	40	122	0	0	0	121	0	0	0
130	78	25502	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
130	136	1320	12	12	6	1	1	1	3	35	12	0	0	138	0	135	0	0	0
130	137	10507	36	12	6	3	1	6	2	70	70	145	0	140	0	0	0	0	0
131	57	1267	22	11	6	2	1	4	2	35	20	5	0	58	0	0	0	0	0
131	56	1109	12	12	6	1	1	1	3	35	15	60	0	0	0	0	0	0	0
131	71	1690	22	11	6	2	1	4	2	35	28	74	0	0	0	66	0	0	0
132	56	5122	36	12	6	3	1	6	2	68	20	60	0	131	0	0	0	0	0
132	53	1848	24	14	6	1	1	6	3	50	20	0	0	0	0	0	0	0	0
132	65	1848	24	14	6	1	1	6	3	50	20	0	0	0	0	0	0	0	0
133	54	1848	24	14	6	1	1	6	3	50	20	42	0	0	0	0	0	0	0
133	46	1848	24	14	6	1	1	6	3	50	20	65	0	0	0	0	0	0	0
133	58	5122	36	12	6	3	1	6	2	68	0	0	0	0	0	0	0	0	0
134	129	8184	12	12	6	1	1	7	3	45	20	128	0	125	0	0	0	0	0
135	114	11827	24	12	6	2	1	4	2	35	20	73	0	0	0	0	0	0	0
135	88	1320	12	12	6	1	1	1	3	35	15	79	0	0	0	0	0	0	0
135	136	2429	24	12	6	2	1	4	2	35	20	138	0	130	0	0	0	0	0
136	135	2429	24	12	6	2	1	4	2	35	20	114	0	0	0	88	0	0	0
136	130	1320	12	12	6	1	1	1	3	35	15	137	0	0	0	0	0	0	0
136	138	8501	22	11	6	2	1	4	2	35	20	143	0	0	0	140	0	0	0
137	130	10507	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
137	140	1320	12	12	6	1	1	1	3	35	10	0	0	141	0	138	0	0	0
137	145	4488	36	12	6	3	1	6	2	70	70	149	0	0	0	146	0	0	0
138	136	8501	22	11	6	2	1	4	2	35	20	135	0	0	0	130	0	0	0
138	140	1848	12	12	6	1	1	4	2	35	20	141	0	137	0	0	0	0	0

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138	143	1584	24	12	6	2	1	4	2	35	20	148	0	163	0	0	0	0	0
139	88	10507	36	12	6	3	1	6	2	70	70	79	0	135	0	0	0	0	0
139	141	1320	12	12	6	1	1	1	3	35	15	0	0	142	0	140	0	0	0
139	144	4488	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
140	141	792	12	12	6	1	1	4	2	40	20	142	0	139	0	0	0	0	0
140	137	1320	12	12	6	1	1	1	3	35	20	145	0	0	0	0	0	0	0
140	138	1848	12	12	6	1	1	4	2	35	20	0	0	136	0	143	0	0	0
141	142	10982	12	12	6	1	1	4	2	40	20	165	0	147	0	0	0	0	0
141	139	1320	12	12	6	1	1	1	3	35	20	88	0	0	0	0	0	0	0
141	140	792	12	12	6	1	1	4	2	40	20	138	0	0	0	137	0	0	0
142	165	9398	12	12	6	1	1	4	2	40	20	168	0	166	0	0	0	0	0
142	141	10982	12	12	6	1	1	4	2	40	20	140	0	0	0	139	0	0	0
142	147	2640	36	12	6	2	1	4	3	40	20	164	0	146	0	0	0	0	0
143	138	1584	24	12	6	2	1	4	2	35	20	136	0	140	0	0	0	0	0
143	148	2746	22	10	6	2	1	4	2	35	20	160	0	149	0	0	0	0	0
143	163	10190	12	12	6	1	1	4	2	35	20	161	0	0	0	162	0	0	0
144	139	4488	36	12	6	3	1	6	2	70	70	88	0	141	0	0	0	0	0
144	150	5544	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
144	146	1320	12	12	6	1	1	1	3	35	12	147	0	0	0	0	0	0	0
145	137	4488	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
145	149	5544	36	12	6	3	1	6	2	70	70	162	0	148	0	0	0	0	0
145	146	1320	12	12	6	1	1	1	3	35	12	147	0	0	0	0	0	0	0
146	147	5544	24	12	6	1	1	4	2	40	20	0	0	164	0	142	0	0	0
146	144	1320	12	12	6	1	1	1	3	35	20	139	0	0	0	0	0	0	0
146	145	1320	12	12	6	1	1	1	3	35	20	149	0	0	0	0	0	0	0
147	142	2640	36	12	6	2	1	4	3	40	20	0	0	165	0	141	0	0	0
147	146	5544	12	12	6	1	1	4	2	40	20	145	0	0	0	144	0	0	0
147	164	5544	24	12	6	1	1	4	2	40	20	0	0	160	0	179	0	0	0
148	143	2746	22	10	6	2	1	4	2	35	20	138	0	0	0	163	0	0	0
148	160	898	22	12	6	2	1	4	2	35	20	164	0	150	0	0	0	0	0
148	149	1320	12	12	6	1	1	1	3	35	20	162	0	0	0	0	0	0	0
149	145	5544	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
149	162	3168	36	12	6	3	1	6	2	70	70	180	0	163	0	0	0	0	0
149	148	1320	12	12	6	1	1	1	3	35	15	0	0	160	0	143	0	0	0
150	144	5544	36	12	6	3	1	6	2	70	70	139	0	146	0	0	0	0	0
150	160	1320	12	12	6	1	1	1	3	35	15	0	0	164	0	148	0	0	0
150	161	3168	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
151	31	7000	36	11	6	1	1	3	3	25	100	852	0	0	0	0	0	0	0
160	164	8765	36	12	6	2	1	4	2	35	20	179	0	0	0	147	0	0	0
160	150	1320	12	12	6	1	1	1	3	35	20	144	0	0	0	0	0	0	0
160	148	898	22	12	6	2	1	4	2	35	20	143	0	0	0	149	0	0	0
161	150	3168	36	12	6	3	1	6	2	70	70	144	0	160	0	0	0	0	0
161	181	5174	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
161	163	1320	12	12	6	1	1	1	3	35	12	143	0	0	0	0	0	0	0
162	149	3168	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
162	163	1320	12	12	6	1	1	1	3	35	12	143	0	0	0	0	0	0	0
162	180	5174	36	12	6	3	1	6	2	70	70	183	0	0	0	0	0	0	0
163	161	1320	12	12	6	1	1	1	3	35	20	150	0	0	0	0	0	0	0
163	162	1320	12	12	6	1	1	1	3	35	20	180	0	0	0	0	0	0	0
163	143	10190	12	12	6	1	1	4	2	35	20	138	0	148	0	0	0	0	0
164	147	5544	24	12	6	1	1	4	2	40	20	142	0	0	0	146	0	0	0
164	179	2798	22	10	6	2	1	4	2	35	20	189	0	0	0	178	0	0	0
164	160	8765	24	12	6	2	1	4	2	35	20	148	0	0	0	150	0	0	0
164	856	7000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
164	278	4000	12	12	6	1	1	5	3	30	0	0	0	0	0	0	0	0	0
165	142	9398	12	12	6	1	1	4	2	40	20	141	0	0	0	147	0	0	0
165	166	1109	12	12	6	1	1	1	3	35	20	177	0	0	0	0	0	0	0
165	168	634	12	12	6	1	1	4	3	40	20	169	0	167	0	0	0	0	0
166	177	8554	24	12	6	2	1	6	3	68	70	190	0	178	0	0	0	0	0
166	115	28512	24	12	6	2	1	6	3	69	0	0	0	0	0	0	0	0	0
166	165	1109	12	12	6	1	1	1	3	35	20	0	0	168	0	142	0	0	0
167	117	28512	24	12	6	2	1	6	3	68	70	109	0	119	0	0	0	0	0
167	168	1109	12	12	6	1	1	1	3	35	20	0	0	169	0	165	0	0	0
167	176	8554	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
168	169	18216	24	12	6	1	1	4	3	45	20	812	0	170	0	116	0	0	0

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168	167	1109	12	12	6	1	1	1	3	35	20	117	0	0	0	0	0	0	0
168	165	634	12	12	6	1	1	4	3	40	20	142	0	0	0	166	0	0	0
169	168	18216	12	12	6	1	1	4	3	45	20	165	0	0	0	167	0	0	0
169	116	27614	11	11	6	1	1	4	3	40	20	106	0	118	0	0	0	0	0
169	174	11088	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
169	812	11088	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
169	170	16949	11	11	6	1	1	4	3	40	20	813	0	171	0	0	0	0	0
170	175	10877	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
170	813	10877	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
170	169	16949	22	11	6	1	1	4	3	40	20	116	0	812	0	168	0	0	0
170	171	21384	12	12	6	1	1	4	3	40	20	178	0	176	0	0	0	0	0
171	170	21384	12	12	6	1	1	4	3	40	20	813	0	0	0	169	0	0	0
171	176	1109	12	12	6	1	1	1	3	35	20	167	0	0	0	0	0	0	0
171	178	581	12	12	6	1	1	4	2	40	20	179	0	177	0	0	0	0	0
172	127	11035	12	12	6	1	1	4	3	45	20	120	0	0	0	0	0	0	0
173	127	9029	12	12	6	1	1	4	3	45	20	120	0	0	0	0	0	0	0
174	169	11088	24	12	6	1	1	4	3	45	20	168	0	116	0	170	0	0	0
175	170	10877	12	12	6	1	1	4	3	40	20	171	0	169	0	0	0	0	0
176	171	1109	12	12	6	1	1	1	3	35	20	0	0	178	0	170	0	0	0
176	167	8554	24	12	6	2	1	6	3	68	70	117	0	168	0	0	0	0	0
176	192	11035	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
177	166	8554	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
177	178	1109	12	12	6	1	1	1	3	35	20	0	0	179	0	171	0	0	0
177	190	11035	24	12	6	2	1	6	3	68	70	208	0	0	0	193	0	0	0
178	171	581	12	12	6	1	1	4	2	40	20	170	0	0	0	176	0	0	0
178	177	1109	12	12	6	1	1	1	3	35	20	190	0	0	0	0	0	0	0
178	179	19483	12	12	6	1	1	4	2	40	20	0	0	164	0	189	0	0	0
179	178	19483	12	12	6	1	1	4	2	40	20	171	0	0	0	177	0	0	0
179	164	2798	33	10	6	2	1	4	2	35	20	160	0	147	0	0	0	0	0
179	189	5755	12	12	6	1	1	4	2	35	20	196	0	0	0	0	0	0	0
180	162	5174	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
180	184	1848	24	14	6	1	1	6	3	50	0	0	0	0	0	0	0	0	0
180	183	1637	36	12	6	3	1	6	2	70	20	252	0	0	0	185	0	0	0
181	161	5174	36	12	6	3	1	6	2	70	20	150	0	0	0	163	0	0	0
181	184	1848	24	14	6	1	1	6	3	50	0	0	0	0	0	0	0	0	0
181	182	1637	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
182	181	1637	36	12	6	3	1	6	2	70	50	161	0	0	0	0	0	0	0
182	185	1848	24	14	6	1	1	6	3	50	20	198	0	0	0	0	0	0	0
182	251	5702	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
183	180	1637	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
183	185	1848	24	14	6	1	1	6	3	50	20	198	0	0	0	0	0	0	0
183	252	5702	36	12	6	3	1	6	2	70	50	254	0	0	0	253	0	0	0
184	197	8870	24	12	6	2	1	6	2	68	0	0	0	0	0	0	0	0	0
184	181	1848	24	14	6	1	1	6	3	50	20	161	0	0	0	0	0	0	0
184	180	1848	24	14	6	1	1	6	3	50	20	[illegible]	0	0	0	0	0	0	0
185	182	1848	24	14	6	1	1	6	3	50	0	0	0	0	0	0	0	0	0
185	183	1848	24	14	6	1	1	6	3	50	0	0	0	0	0	0	0	0	0
185	198	8870	24	12	6	2	1	6	2	68	20	256	0	199	0	0	0	0	0
189	179	5755	12	12	6	1	1	4	2	35	20	164	0	178	0	0	0	0	0
189	196	1901	12	12	6	1	1	4	2	35	20	199	0	197	0	0	0	0	0
189	104	7000	11	11	3	1	1	5	3	25	0	0	0	0	0	0	0	0	0
189	857	7000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
190	177	11035	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
190	193	1109	12	12	6	1	1	1	3	35	20	194	0	0	0	0	0	0	0
190	208	5069	24	12	6	2	1	6	3	68	65	209	0	212	0	0	0	0	0
192	176	11035	24	12	6	2	1	6	3	68	65	167	0	171	0	0	0	0	0
192	193	1109	12	12	6	1	1	1	3	35	20	194	0	0	0	0	0	0	0
192	206	5069	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
193	194	9398	12	12	6	1	1	4	3	40	20	814	0	195	0	0	0	0	0
193	192	1109	12	12	6	1	1	1	3	35	20	176	0	0	0	0	0	0	0
193	190	1109	12	12	6	1	1	1	3	35	20	208	0	0	0	0	0	0	0
194	240	12144	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
194	814	12144	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
194	193	9398	12	12	6	1	1	4	3	40	20	190	0	192	0	0	0	0	0
194	195	9398	12	12	6	1	1	4	3	45	20	218	0	0	0	219	0	0	0

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195	194	9398	12	12	6	1	1	4	3	45	20	0	0	814	0	193	0	0	0
195	219	2112	24	12	6	2	1	4	3	45	20	221	0	0	0	220	0	0	0
195	218	3326	24	12	6	2	1	4	3	45	20	217	0	203	0	0	0	0	0
196	189	1901	12	12	6	1	1	4	2	35	20	179	0	0	0	0	0	0	0
196	199	845	24	12	6	2	1	4	2	35	20	226	0	198	0	0	0	0	0
196	197	1109	12	12	6	1	1	1	3	35	20	184	0	0	0	0	0	0	0
197	196	1109	12	12	6	1	1	1	3	35	10	0	0	199	0	189	0	0	0
197	201	9504	48	12	6	4	1	6	2	68	0	0	0	0	0	0	0	0	0
197	184	8870	24	12	6	2	1	6	2	68	20	180	0	181	0	0	0	0	0
198	185	8870	24	12	6	2	1	6	2	68	0	0	0	0	0	0	0	0	0
198	199	1109	12	12	6	1	1	1	3	35	10	0	0	226	0	196	0	0	0
198	256	9504	48	12	6	4	1	6	2	68	20	202	0	0	0	204	0	0	0
199	198	1109	12	12	6	1	1	1	3	35	20	256	0	0	0	0	0	0	0
199	196	845	24	12	6	2	1	4	2	35	20	189	0	0	0	197	0	0	0
199	226	19694	12	12	6	1	1	4	2	35	20	260	0	0	0	225	0	0	0
200	202	2904	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
200	215	1109	12	12	6	1	1	1	3	35	10	217	0	0	0	0	0	0	0
200	228	7181	24	12	6	2	1	6	3	68	20	231	0	229	0	0	0	0	0
201	197	9504	48	12	6	4	1	6	2	68	20	184	0	196	0	0	0	0	0
201	255	1320	24	12	6	2	1	6	2	68	0	0	0	0	0	0	0	0	0
201	204	1584	24	14	6	1	1	1	3	50	0	0	0	0	0	0	0	0	0
202	256	1320	24	12	6	2	1	6	2	68	0	0	0	0	0	0	0	0	0
202	200	2904	24	12	6	2	1	6	3	68	20	228	0	0	0	215	0	0	0
202	205	1584	24	14	6	1	1	1	3	50	20	213	0	0	0	0	0	0	0
203	207	3960	24	12	6	2	1	6	3	68	70	206	0	210	0	0	0	0	0
203	223	3010	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
203	218	1109	12	12	6	1	1	1	3	35	20	0	0	217	0	195	0	0	0
204	212	5438	36	12	6	3	1	6	3	68	20	0	0	0	0	0	0	0	0
204	201	1584	24	14	6	1	1	1	3	50	20	197	0	0	0	0	0	0	0
204	256	1584	24	14	6	1	1	1	3	50	20	202	0	0	0	0	0	0	0
205	213	5438	36	12	6	3	1	6	3	68	20	210	0	209	0	0	0	0	0
205	255	1584	24	14	6	1	1	1	3	50	0	0	0	0	0	0	0	0	0
205	202	1584	24	14	6	1	1	1	3	50	0	0	0	0	0	0	0	0	0
206	192	5069	24	12	6	2	1	6	3	68	30	176	0	193	0	0	0	0	0
206	211	1584	24	14	6	1	1	1	3	50	12	212	0	0	0	0	0	0	0
206	207	2904	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
207	206	2904	24	12	6	2	1	6	3	68	30	192	0	211	0	0	0	0	0
207	210	1584	24	14	6	1	1	1	3	50	15	221	0	0	0	0	0	0	0
207	203	3960	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
208	190	5069	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
208	212	1584	24	14	6	1	1	1	3	50	12	204	0	0	0	0	0	0	0
208	209	2904	24	12	6	2	1	6	3	68	30	216	0	213	0	0	0	0	0
209	208	2904	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
209	213	1584	24	14	6	1	1	1	3	50	20	210	0	0	0	0	0	0	0
209	216	3960	24	12	6	2	1	6	3	68	20	[illegible]	0	217	0	0	0	0	0
210	221	7181	36	12	6	3	1	6	3	68	20	815	0	0	0	219	0	0	0
210	213	1795	36	12	6	3	1	6	3	68	0	0	0	0	0	0	0	0	0
210	207	1584	24	14	6	1	1	1	3	50	20	206	0	0	0	0	0	0	0
211	220	7181	36	12	6	3	1	6	3	68	20	0	0	0	0	0	0	0	0
211	206	1584	24	14	6	1	1	1	3	50	20	192	0	0	0	0	0	0	0
211	212	1795	36	12	6	3	1	6	3	68	20	204	0	208	0	0	0	0	0
212	211	1795	36	12	6	3	1	6	3	68	20	0	0	0	0	0	0	0	0
212	208	1584	24	14	6	1	1	1	3	50	20	209	0	0	0	0	0	0	0
212	204	5438	36	12	6	3	1	6	3	68	20	256	0	201	0	0	0	0	0
213	210	1795	36	12	6	3	1	6	3	68	20	221	0	207	0	0	0	0	0
213	209	1584	24	14	6	1	1	1	3	50	20	216	0	0	0	0	0	0	0
213	205	5438	36	12	6	3	1	6	3	68	0	0	0	0	0	0	0	0	0
214	215	1109	12	12	6	1	1	1	3	35	10	217	0	0	0	0	0	0	0
214	227	7181	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
214	255	2904	24	12	6	2	1	6	3	68	20	201	0	205	0	0	0	0	0
215	214	1109	12	12	6	1	1	1	3	35	20	255	0	0	0	0	0	0	0
215	217	7709	12	12	6	1	1	4	3	35	20	218	0	0	0	216	0	0	0
215	200	1109	12	12	6	1	1	1	3	35	20	228	0	0	0	0	0	0	0
216	209	3960	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
216	222	3010	24	12	6	2	1	6	3	68	70	234	0	225	0	0	0	0	0

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216	217	1109	12	12	6	1	1	1	3	35	18	0	0	215	0	218	0	0	0
217	216	1109	12	12	6	1	1	1	3	35	20	222	0	0	0	0	0	0	0
217	218	1003	12	12	6	1	1	4	3	35	20	195	0	0	0	203	0	0	0
217	215	7709	12	12	6	1	1	4	3	35	20	200	0	214	0	0	0	0	0
218	195	3326	24	12	6	2	1	4	3	45	20	194	0	219	0	0	0	0	0
218	203	1109	12	12	6	1	1	1	3	35	20	207	0	0	0	0	0	0	0
218	217	1003	12	12	6	1	1	4	3	35	20	215	0	216	0	0	0	0	0
219	220	1109	12	14	6	1	1	1	3	35	20	211	0	0	0	0	0	0	0
219	221	1109	12	14	6	1	1	1	3	35	20	815	0	0	0	0	0	0	0
219	195	2112	24	12	6	2	1	4	3	45	20	0	0	194	0	218	0	0	0
220	239	7814	36	12	6	3	1	6	3	68	0	0	0	0	0	0	0	0	0
220	219	1109	12	14	6	1	1	1	3	35	10	195	0	0	0	0	0	0	0
220	211	7181	36	12	6	3	1	6	3	68	20	212	0	206	0	0	0	0	0
221	815	7814	36	12	6	3	1	6	3	68	20	0	0	0	0	0	0	0	0
221	219	1109	12	14	6	1	1	1	3	35	10	195	0	0	0	0	0	0	0
221	210	7181	36	12	6	3	1	6	3	68	0	0	0	0	0	0	0	0	0
222	216	3010	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
222	225	1109	12	12	6	1	1	1	3	35	20	0	0	226	0	224	0	0	0
222	234	3168	24	12	6	2	1	6	3	68	70	229	0	227	0	0	0	0	0
223	203	3010	24	12	6	2	1	6	3	68	70	207	0	218	0	0	0	0	0
223	224	1109	12	12	6	1	1	1	3	35	20	0	0	225	0	816	0	0	0
223	233	3168	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
224	235	11088	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
224	816	11088	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
224	223	1109	12	12	6	1	1	1	3	35	20	203	0	0	0	0	0	0	0
224	225	686	12	12	6	1	1	4	3	40	20	226	0	222	0	0	0	0	0
225	224	686	12	12	6	1	1	4	3	40	20	816	0	0	0	223	0	0	0
225	222	1109	12	12	6	1	1	1	3	35	20	234	0	0	0	0	0	0	0
225	226	16474	12	12	6	1	1	4	2	40	20	0	0	199	0	260	0	0	0
226	225	16474	12	12	6	1	1	4	2	40	20	224	0	0	0	222	0	0	0
226	199	19694	12	12	6	1	1	4	2	35	20	196	0	0	0	198	0	0	0
226	260	898	30	10	6	2	1	4	2	35	20	262	0	259	0	263	0	0	0
227	232	1954	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
227	234	1584	24	14	6	1	1	1	3	50	20	229	0	0	0	0	0	0	0
227	214	7181	24	12	6	2	1	6	3	68	20	255	0	215	0	0	0	0	0
228	231	1954	24	12	6	2	1	6	3	68	20	237	0	230	0	0	0	0	0
228	229	1584	24	14	6	1	1	1	3	50	20	270	0	0	0	0	0	0	0
228	200	7181	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
229	270	11352	24	12	6	2	1	6	3	68	50	820	0	272	0	0	0	0	0
229	234	1637	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
229	228	1584	24	14	6	1	1	1	3	50	12	231	0	0	0	0	0	0	0
230	233	1637	24	12	6	2	1	6	3	68	50	223	0	232	0	0	0	0	0
230	271	11352	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
230	231	1584	24	14	6	1	1	1	3	50	20	237	0	0	0	0	0	0	0
231	237	9082	24	12	6	2	1	6	3	68	20	[illegible]	0	0	0	238	0	0	0
231	228	1954	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
231	230	1584	24	14	6	1	1	1	3	50	20	233	0	0	0	0	0	0	0
232	236	9082	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
232	227	1954	24	12	6	2	1	6	3	68	20	214	0	234	0	0	0	0	0
232	233	1584	24	14	6	1	1	1	3	50	20	223	0	0	0	0	0	0	0
233	223	3168	24	12	6	2	1	6	3	68	40	203	0	224	0	0	0	0	0
233	230	1637	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
233	232	1584	24	14	6	1	1	1	3	50	12	227	0	0	0	0	0	0	0
234	229	1637	24	12	6	2	1	6	3	68	60	270	0	228	0	0	0	0	0
234	222	3168	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
234	227	1584	24	14	6	1	1	1	3	50	12	214	0	0	0	0	0	0	0
235	224	11088	12	12	6	1	1	4	3	40	20	225	0	223	0	0	0	0	0
236	232	9082	24	12	6	2	1	6	3	68	20	227	0	233	0	0	0	0	0
236	238	1109	12	12	6	1	1	1	3	35	20	817	0	0	0	0	0	0	0
236	275	8448	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
237	818	8448	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
237	238	1109	12	12	6	1	1	1	3	35	20	817	0	0	0	0	0	0	0
237	231	9082	24	12	6	2	1	6	3	68	20	0	0	0	0	0	0	0	0
238	101	13200	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
238	817	13200	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0

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238	236	1109	12	12	6	1	1	1	3	35	20	232	0	0	0	0	0	0	0
238	237	1109	12	12	6	1	1	1	3	35	20	818	0	0	0	0	0	0	0
239	220	7814	36	12	6	3	1	6	3	68	20	211	0	219	0	0	0	0	0
240	194	12144	12	12	6	1	1	4	3	40	20	193	0	0	0	195	0	0	0
251	182	5702	36	12	6	3	1	6	2	70	70	181	0	185	0	0	0	0	0
251	253	1320	12	12	6	1	1	1	3	35	12	259	0	0	0	0	0	0	0
251	257	3802	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
252	183	5702	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
252	254	3802	36	12	6	3	1	6	2	70	70	822	0	258	0	0	0	0	0
252	253	1320	12	12	6	1	1	1	3	35	12	259	0	0	0	0	0	0	0
253	252	1320	12	12	6	1	1	1	3	35	20	254	0	0	0	0	0	0	0
253	251	1320	12	12	6	1	1	1	3	35	20	182	0	0	0	0	0	0	0
253	259	12355	24	12	6	1	1	4	2	35	20	264	0	113	0	260	0	0	0
254	252	3802	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
254	822	16157	36	12	6	3	1	6	2	70	70	0	0	0	0	0	0	0	0
254	258	1320	12	12	6	1	1	1	3	35	10	113	0	0	0	0	0	0	0
255	214	2904	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
255	205	1584	24	14	6	1	1	1	3	50	20	213	0	0	0	0	0	0	0
255	201	1320	48	12	6	2	1	6	2	68	20	197	0	0	0	0	0	0	0
256	202	1320	24	12	6	2	1	6	2	68	20	200	0	0	0	205	0	0	0
256	204	1584	24	14	6	1	1	1	3	50	0	0	0	0	0	0	0	0	0
256	198	9504	48	12	6	4	1	6	2	68	0	0	0	0	0	0	0	0	0
257	251	3802	36	12	6	3	1	6	2	70	70	182	0	253	0	0	0	0	0
257	258	1320	12	12	6	1	1	1	3	35	10	113	0	0	0	0	0	0	0
257	261	16157	36	12	6	3	1	6	2	70	0	0	0	0	0	0	0	0	0
258	257	1320	12	12	6	1	1	1	3	35	20	251	0	0	0	0	0	0	0
258	254	1320	12	12	6	1	1	1	3	35	20	822	0	0	0	0	0	0	0
258	113	10560	12	12	6	1	1	4	2	35	20	259	0	0	0	0	0	0	0
259	113	19061	12	12	6	1	1	4	2	35	20	258	0	0	0	0	0	0	0
259	253	12355	12	12	6	1	1	4	2	35	20	252	0	0	0	251	0	0	0
259	260	4594	24	12	6	1	1	4	2	40	20	263	0	262	0	226	0	0	0
259	264	6072	12	12	6	1	1	4	2	35	20	0	0	821	0	262	0	0	0
260	263	8659	12	12	6	1	1	4	2	40	20	0	0	262	0	272	0	0	0
260	262	4646	22	11	6	2	1	4	2	35	20	264	0	0	0	263	0	0	0
260	226	898	20	10	6	2	1	4	2	35	20	199	0	225	0	0	0	0	0
260	259	4594	24	12	6	1	1	4	2	40	20	113	0	253	0	264	0	0	0
261	257	16157	36	12	6	3	1	6	2	70	20	251	0	0	0	258	0	0	0
262	264	1795	24	12	6	2	1	4	2	35	20	821	0	0	0	0	0	0	0
262	263	6864	24	12	6	1	1	4	2	40	20	272	0	0	0	260	0	0	0
262	260	4646	33	11	6	2	1	4	2	35	20	226	0	263	0	0	0	0	0
263	262	6864	12	12	6	1	1	4	2	40	20	0	0	260	0	264	0	0	0
263	260	8659	24	12	6	1	1	4	2	40	20	259	0	226	0	262	0	0	0
263	272	10296	12	12	6	1	1	4	2	40	20	273	0	270	0	0	0	0	0
263	858	7000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
263	279	5000	12	12	6	1	1	5	3	30	0	0	0	0	0	0	0	0	0
264	265	950	24	12	6	2	1	4	2	35	0	0	0	0	0	0	0	0	0
264	821	1050	24	12	6	2	1	4	2	35	20	0	0	0	0	0	0	0	0
264	259	6072	24	12	6	1	1	4	2	35	20	253	0	260	0	113	0	0	0
264	262	1795	24	12	6	2	1	4	2	35	20	260	0	263	0	0	0	0	0
265	264	1050	24	12	6	2	1	4	2	35	20	262	0	0	0	259	0	0	0
270	820	5069	24	12	6	2	1	6	3	68	70	0	0	0	0	0	0	0	0
270	272	1109	12	12	6	1	1	1	3	35	12	0	0	273	0	263	0	0	0
270	229	11352	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
271	274	5069	24	12	6	2	1	6	3	68	0	0	0	0	0	0	0	0	0
271	273	1109	12	12	6	1	1	1	3	35	10	0	0	819	0	272	0	0	0
271	230	11352	24	12	6	2	1	6	3	68	70	233	0	231	0	0	0	0	0
272	263	10296	24	12	6	1	1	4	2	40	20	262	0	260	0	0	0	0	0
272	273	950	12	12	6	1	1	4	2	40	20	819	0	271	0	0	0	0	0
272	270	1109	12	12	6	1	1	1	3	35	20	820	0	0	0	0	0	0	0
273	102	8026	12	12	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
273	819	8026	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
273	271	1109	12	12	6	1	1	1	3	35	20	230	0	0	0	0	0	0	0
273	272	950	12	12	6	1	1	4	2	40	20	263	0	0	0	270	0	0	0
274	271	5069	24	12	6	2	1	6	3	68	20	230	0	273	0	0	0	0	0
275	236	8448	24	12	6	2	1	6	3	68	20	232	0	238	0	0	0	0	0

Fairfield County Link Card File

276	277	4000	24	12	3	1	1	5	3	30	100	851	0	0	0	0	0	0	0
277	276	4000	12	12	3	1	1	5	3	30	0	0	0	0	0	0	0	0	0
277	15	4000	36	12	6	2	1	4	2	35	50	7	0	16	0	12	0	0	0
277	19	4000	36	12	6	2	1	4	2	35	50	23	0	0	0	20	0	0	0
277	851	5000	12	12	3	1	1	5	2	30	100	0	0	0	0	0	0	0	0
278	164	4000	36	12	3	1	1	5	2	30	100	856	0	0	0	0	0	0	0
279	263	6000	36	12	6	1	1	5	3	30	100	858	0	0	0	0	0	0	0
99999																			

Fairfield County Background Traffic (ADT)

Background Traffic One way ADT - ffpop2.prn

95	3	66000	1	2	100
1	3	11000	1	3	100
15	3	15500	1	10	100
104	3	6000	1	51	100
137	3	5000	1	52	100
124	3	3000	1	123	100
123	3	6000	1	124	100
33	3	3000	1	126	100
7	3.	11000	1	134	100
57	3	3500	1	172	100
53	3	2500	1	173	100
58	3	3000	1	174	100
59	3	3500	1	175	100
111	3	6000	1	240	100
25	3	14000	1	239	100
108	3	4000	1	235	100
714	3	6500	1	101	100
8	3	20000	1	275	100
110	3	7500	1	102	100
15	3	28000	1	274	100
1	3	11000	1	265	100
95	3	60000	1	261	100

Fairfield County Surge Vulnerable Population File (Cat. 1&2)

Fairfield type 2 population perm & season

10201	1	60	1.9	11	50	83	20	9	20	7	10		
10202	1	48	1.9	11	40	83	30	7	30				
104	1	313	1.9	4	30	9	30	11	40				
105	1	102	1.9	4	40	9	60						
107	1	253	1.9	9	40	11	50	5	10				
108	1	1251	1.9	9	20	7	30	11	30	4	20		
109	1	187	1.9	11	50	83	10	7	40				
110	1	2460	1.9	4	40	5	15	7	20	11	25		
111	1	991	1.9	4	40	5	20	7	20	112	20		
112	1	1023	1.9	112	60	4	20	9	20				
113	1	867	1.9	4	50	112	20	9	30				
219	1	1085	2.2	24	30	25	20	276	20	27	30		
221	1	441	2.2	21	30	20	30	277	20	18	20		
222	1	109	2.2	13	10	14	10	276	20	17	15	276	45
223	1	938	2.2	276	35	14	20	15	20	16	25		
224	1	877	2.2	111	40	23	30	19	30				
302	1	43	1.9	29	100								
303	1	2327	1.9	32	25	41	25	151	20	94	15	95	15
304	1	306	1.9	27	60	151	40						
434	1	26	2.0	65	100								
437	1	212	2.0	61	50	69	50						
439	1	64	2.0	44	60	42	40						
441	1	1431	2.0	44	40	55	30	66	30				
442	1	1357	2.0	71	60	56	20	58	20				
443	1	775	2.0	74	40	53	30	65	30				
444	1	1882	2.0	63	100								
445	1	99	2.0	63	60	43	20	42	20				
446	1	1376	2.0	63	30	45	40	57	30				
501	1	50	1.7	100	100								
502	1	420	1.7	100	40	108	30	82	30				
504	1	996	1.7	76	40	75	40	82	20				
505	1	1230	1.7	103	60	81	20	80	20				
506	1	423	1.7	103	50	114	25	73	25				
605	1	14	1.9	135	30	136	30	142	40				
606	1	364	1.9	138	40	130	30	135	30				
607	1	397	1.9	137	40	139	30	147	30				
608	1	238	1.9	164	60	177	40						
611	1	10	1.9	177	40	176	30	171	30				
612	1	117	1.9	177	40	176	30	171	30				
613	1	105	1.9	165	50	168	50						
614	1	394	1.9	147	30	164	40	142	30				
615	1	3165	1.9	278	50	143	20	160	20	149	10		
616	1	3574	1.9	278	50	143	25	135	10	130	15		
701	1	2598	3.1	163	40	161	30	162	30				
702	1	2305	3.1	104	60	180	20	163	20				
703	1	1727	3.1	104	60	183	40						
704	1	1579	3.1	104	30	183	30	163	40				
705	1	1585	3.1	183	30	182	30	198	40				
706	1	852	3.1	252	40	251	40	185	20				
707	1	61	3.1	252	40	251	40	185	20				
708	1	193	3.1	104	30	183	30	253	40				
709	1	1183	3.1	104	30	183	30	253	40				
710	1	1481	3.1	179	60	189	40						
711	1	659	3.1	179	40	189	30	205	30				
712	1	500	3.1	196	40	199	30	202	30				
715	1	44	3.1	198	100								
717	1	272	3.1	213	40	206	30	202	30				
721	1	47	3.1	213	40	206	30	202	30				
729	1	14	3.1	213	40	207	30	210	30				
734	1	134	3.1	200	100								
735	1	136	3.1	200	50	214	50						
737	1	151	3.1	202	50	198	50						
738	1	50	3.1	199	50	196	50						
739	1	619	3.1	198	50	197	50						
740	1	334	3.1	185	40	184	30	104	30				

Fairfield County Surge Vulnerable Population File (Cat. 1&2)

741	1	748	3.1	252	40	251	40	185	20			
742	1	501	3.1	185	50	252	20	251	30			
743	1	1865	3.1	253	40	182	30	183	30			
744	1	3757	3.1	252	30	251	30	185	40			
802	1	118	2.0	226	40	259	20	257	20	254	20	
803	1	408	2.0	259	30	258	40	226	30			
804	1	4041	2.0	258	40	113	20	279	20	226	20	
805	1	2828	2.0	279	100							
806	1	1441	2.0	259	40	279	30	279	30			
807	1	888	2.0	262	40	264	30	263	30			
808	1	874	2.0	272	40	279	60					
812	1	96	2.0	279	100							

Fairfield County Surge Vulnerable Population File (Cat. 3&4)

Fairfield type 2 population perm & season

10201	1	136	1.9	11	50	83	20	9	20	7	10		
10202	1	109	1.9	11	40	83	30	7	30				
104	1	425	1.9	4	30	9	30	11	40				
105	1	229	1.9	4	40	9	60						
107	1	407	1.9	9	40	11	50	5	10				
108	1	2140	1.9	9	20	7	30	11	30	4	20		
109	1	421	1.9	11	50	83	10	7	40				
110	1	3497	1.9	4	40	5	15	7	20	11	25		
111	1	1115	1.9	4	40	5	20	7	20	112	20		
112	1	1270	1.9	112	60	4	20	9	20				
113	1	1461	1.9	4	50	112	20	9	30				
219	1	1220	2.2	24	30	25	20	276	20	27	30		
221	1	496	2.2	21	30	20	30	277	20	18	20		
222	1	122	2.2	13	10	14	10	276	20	17	15	276	45
223	1	1268	2.2	276	35	14	20	15	20	16	25		
224	1	1049	2.2	111	40	23	30	19	30				
302	1	97	1.9	29	100								
303	1	2663	1.9	32	25	41	25	151	20	94	15	95	15
304	1	448	1.9	27	60	151	40						
434	1	58	2.0	65	100								
437	1	357	2.0	61	50	69	50						
439	1	144	2.0	44	60	42	40						
441	1	2386	2.0	44	40	55	30	66	30				
442	1	2671	2.0	71	60	56	20	58	20				
443	1	1176	2.0	74	40	53	30	65	30				
444	1	2117	2.0	63	100								
445	1	156	2.0	63	60	43	20	42	20				
446	1	1851	2.0	63	30	45	40	57	30				
501	1	106	1.7	100	100								
502	1	585	1.7	100	40	108	30	82	30				
504	1	1193	1.7	76	40	75	40	82	20				
505	1	1895	1.7	103	60	81	20	80	20				
506	1	475	1.7	103	50	114	25	73	25				
605	1	31	1.9	135	30	136	30	142	40				
606	1	577	1.9	138	40	130	30	135	30				
607	1	692	1.9	137	40	139	30	147	30				
608	1	536	1.9	164	60	177	40						
611	1	23	1.9	177	40	176	30	171	30				
612	1	263	1.9	177	40	176	30	171	30				
613	1	118	1.9	165	50	168	50						
614	1	540	1.9	147	30	164	40	142	30				
615	1	4128	1.9	278	50	143	20	160	20	149	10		
616	1	4571	1.9	278	50	143	25	135	10	130	15		
701	1	4566	3.1	163	40	161	30	162	30				
702	1	3589	3.1	104	60	180	20	63	20				
703	1	1943	3.1	104	60	183	40						
704	1	1886	3.1	104	30	183	30	163	40				
705	1	2462	3.1	183	30	182	30	198	40				
706	1	1293	3.1	252	40	251	40	185	20				
707	1	75	3.1	252	40	251	40	185	20				
708	1	434	3.1	104	30	183	30	253	40				
709	1	2661	3.1	104	30	183	30	253	40				
710	1	3313	3.1	179	60	189	40						
711	1	1482	3.1	179	40	189	30	205	30				
712	1	1125	3.1	196	40	199	30	202	30				
715	1	98	3.1	198	100								
717	1	401	3.1	213	40	206	30	202	30				
721	1	106	3.1	213	40	206	30	202	30				
729	1	15	3.1	213	40	207	30	210	30				
734	1	228	3.1	200	100								
735	1	153	3.1	200	50	214	50						
737	1	284	3.1	202	50	198	50						
738	1	113	3.1	199	50	196	50						
739	1	1118	3.1	198	50	197	50						
740	1	658	3.1	185	40	184	30	104	30				

Fairfield County Surge Vulnerable Population File (Cat. 3&4)

741	1	1642	3.1	252	40	251	40	185	20		
742	1	1127	3.1	185	50	252	20	251	30		
743	1	4142	3.1	253	40	182	30	183	30		
744	1	4363	3.1	252	30	251	30	185	40		
802	1	265	2.0	226	40	259	20	257	20	254	20
803	1	575	2.0	259	30	258	40	226	30		
804	1	4855	2.0	258	40	113	20	279	20	226	20
805	1	3182	2.0	279	100						
806	1	2060	2.0	259	40	279	30	279	30		
807	1	1372	2.0	262	40	264	30	263	30		
808	1	1598	2.0	272	40	279	60				
812	1	108	2.0	279	100						

Fairfield County Non-surge Vulnerable & Mobile Home Population Files

Fairfield Weak Storm Non-vulnerable Evac Pop + Mobile Home Evac Pop

Greenwh 1	**940**	**1.9**	**4**	**20**	**5**	**20**	**9**	**20**	**11**	**20**	**83**	**20**
Stamfor 1	**2110**	**2.2**	**13**	**20**	**14**	**20**	**15**	**20**	**18**	**20**	**86**	**20**
Darien 1	**310**	**1.9**	**27**	**20**	**32**	**20**	**41**	**20**	**94**	**20**	**96**	**20**
Norwalk 1	**1420**	**2.0**	**44**	**20**	**58**	**20**	**56**	**20**	**61**	**20**	**67**	**20**
Westprt 1	**570**	**1.7**	**108**	**20**	**109**	**20**	**82**	**20**	**73**	**20**	**106**	**20**
FField 1	**840**	**1.9**	**168**	**20**	**167**	**20**	**166**	**20**	**164**	**20**	**149**	**20**
Bridgep 1	**1990**	**3.1**	**215**	**20**	**256**	**20**	**163**	**20**	**253**	**20**	**213**	**20**
Statfrd 1	**700**	**2.0**	**259**	**20**	**226**	**20**	**253**	**20**	**272**	**20**	**228**	**20**

Fairfield Strong Storm Non-vulnerable Evac Pop + Mobile Homes Evac Pop

Greenwh 2	2317	1.9	4	20	5	20	9	20	11	20	83	20
Stamfor 2	5202	2.2	13	20	14	20	15	20	18	20	86	20
Darien 2	743	1.9	27	20	32	20	41	20	94	20	96	20
Norwalk 2	3394	2.0	44	20	58	20	56	20	61	20	67	20
Westprt 2	1154	1.7	108	20	109	20	82	20	73	20	106	20
FField 2	2055	1.9	168	20	167	20	166	20	164	20	149	20
Bridgep 2	4937	3.1	215	20	256	20	163	20	253	20	213	20
Statfrd 2	1722	2.0	259	20	226	20	253	20	272	20	228	20

Fairfield County POPDIS Input Files (Cat. 3&4)

```
Fairfield County Strong Storm Off-peak Traffic w/ Shelters, Rapid Response
&files
filename(1)='fspop2sh.prn'
filename(2)='fsnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshe.out'
outprint='fspopshe.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.23 frc(3,2)=0.30 frc(3,3)=0.33 frc(3,4)=0.14
/
&timeint
int1(1)=1080.0 int1(2)=1200.0 int1(3)=1240.0 int1(4)=1320.0 int1(5)=1440.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=810.0 int2(5)=1380.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

```
Fairfield County Strong Storm Off-peak Traffic w/ Shelters
&files
filename(1)='fspop2sh.prn'
filename(2)='fsnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshe.out'
outprint='fspopshe.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.23 frc(3,2)=0.30 frc(3,3)=0.33 frc(3,4)=0.14
/
&timeint
int1(1)=900.0 int1(2)=1080.0 int1(3)=1140.0 int1(4)=1260.0 int1(5)=1440.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=810.0 int2(5)=1380.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

Fairfield County POPDIS Input Files (Cat. 3&4)

```
Fairfield County Strong Storm Off-peak Traffic w/ Shelters, Slow Response
&files
filename(1)='fspop2sh.prn'
filename(2)='fsnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshe.out'
outprint='fspopshe.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.23 frc(3,2)=0.30 frc(3,3)=0.33 frc(3,4)=0.14
/
&timeint
intl(1)=720.0 intl(2)=960.0 intl(3)=1040.0 intl(4)=1200.0 intl(5)=1440.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=810.0 int2(5)=1380.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

```
Fairfield County Strong Storm Mid-peak Traffic w/ Shelters, Rapid Response
&files
filename(1)='fspop2sh.prn'
filename(2)='f5nonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshm.out'
outprint='fspopshm.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.30 frc(3,3)=0.11 frc(3,4)=0.05
/
&timeint
int1(1)=540.0 int1(2)=660.0 int1(3)=700.0 int1(4)=780.0 int1(5)=900.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=820.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

```
Fairfield County Strong Storm during Mid-peak Traffic w/ Shelters, Moderate Response
&files
filename(1)='fspop2sh.prn'
filename(2)='f5nonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshm.out'
outprint='fspopshm.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.30 frc(3,3)=0.11 frc(3,4)=0.05
/
&timeint
int1(1)=360.0 int1(2)=540.0 int1(3)=600.0 int1(4)=720.0 int1(5)=900.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=820.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

Fairfield County POPDIS Input Files Mid-peak Traffic (Cat. 3&4)

```
Fairfield County Strong Storm Mid-peak Traffic w/ Shelters, Slow Response
&files
filename(1)='fspop2sh.prn'
filename(2)='fSnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshm.out'
outprint='fspopshm.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.30 frc(3,3)=0.11 frc(3,4)=0.05
/
&timeint
intl(1)=180.0 intl(2)=420.0 intl(3)=500.0 intl(4)=660.0 intl(5)=900.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=820.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

Fairfield County POPDIS Input Files Peak Traffic (Cat. 3&4)

```
Fairfield County Strong Storm Peak Traffic, Rapid Response
&files
filename(1)='fspop2sh.prn'
filename(2)='fsnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshr.out'
outprint='fspopshr.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.30 frc(3,3)=0.22 frc(3,4)=0.18
/
&timeint
int1(1)=750.0 int1(2)=870.0 int1(3)=910.0 int1(4)=990.0 int1(5)=1110.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=870.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

```
Fairfield County Strong Storm during Peak Traffic, Moderate Response
&files
filename(1)='fspop2sh.prn'
filename(2)='fsnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshr.out'
outprint='fspopshr.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.30 frc(3,3)=0.22 frc(3,4)=0.18
/
&timeint
int1(1)=570.0 int1(2)=750.0 int1(3)=810.0 int1(4)=930.0 int1(5)=1110.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=870.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

Fairfield County POPDIS Input Files Peak Traffic (Cat. 3&4)

```
Fairfield County Strong Storm during Peak Traffic, Slow Response
&files
filename(1)='fspop2sh.prn'
filename(2)='fsnonv.prn'
filename(3)='fbackgd.prn'
outfile='fspopshr.out'
outprint='fspopshr.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.30 frc(3,3)=0.22 frc(3,4)=0.18
/
&timeint
int1(1)=390.0 int1(2)=630.0 int1(3)=710.0 int1(4)=870.0 int1(5)=1110.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=870.0
/
2,3,10,51,52,123,124,126,134,172,173,174,175,240,239,235,101,275,102,274,265,261
```

Annex B: NEW HAVEN NETWORK COMPUTER INPUT FILES

New Haven County Link Card File

70	276	11774	36	12	6	2	1	6	2	60	60	280	0	277	0	0	0	0	0
70	271	1954	24	12	6	2	1	1	2	55	55	267	0	0	0	0	0	0	0
70	273	634	36	12	6	3	1	6	2	60	0	261	0	270	0	0	0	0	0
71	275	11774	24	12	6	2	1	6	2	60	0	279	0	0	0	274	0	0	0
71	271	1954	24	12	6	2	1	1	2	45	40	267	0	0	0	0	0	0	0
71	272	634	36	12	6	3	1	6	2	60	60	260	0	0	0	0	0	0	0
80	81	3960	24	12	6	1	1	4	2	35	100	870	0	0	0	0	0	0	0
81	80	3960	12	12	6	1	1	4	2	35	0	0	0	0	0	0	0	0	0
81	265	1478	36	12	6	2	1	4	2	40	20	268	0	0	0	266	0	0	0
81	269	1162	24	12	6	2	1	4	2	40	20	183	0	211	0	259	0	0	0
81	870	2640	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
83	84	1109	12	12	6	1	1	4	2	30	10	0	0	393	0	0	0	0	0
83	86	581	24	12	6	1	1	4	2	35	20	305	0	85	0	0	0	0	0
83	286	10296	24	12	6	1	1	4	3	35	30	299	0	285	0	0	0	0	0
84	393	22757	36	12	6	2	1	6	3	60	80	316	0	392	0	0	0	0	0
84	83	1109	12	12	6	1	1	4	2	30	40	0	0	86	0	286	0	0	0
84	284	9874	24	12	6	2	1	6	3	60	0	301	0	0	0	285	0	0	0
85	283	9874	36	12	6	2	1	6	3	60	80	300	0	282	0	0	0	0	0
85	86	1109	12	12	6	1	1	4	2	30	20	0	0	305	0	83	0	0	0
85	390	22757	24	12	6	2	1	6	3	60	0	317	0	0	0	391	0	0	0
86	83	581	24	12	6	1	1	4	2	35	20	286	0	0	0	84	0	0	0
86	85	1109	12	12	6	1	1	4	2	30	20	0	0	283	0	0	0	0	0
86	305	1056	24	12	6	1	1	4	3	40	20	308	0	0	0	306	0	0	0
87	151	2640	24	12	6	1	1	4	4	30	100	0	0	854	0	0	0	0	0
88	132	2640	24	12	6	1	1	4	4	30	100	859	0	0	0	0	0	0	0
89	297	2640	24	12	6	1	1	4	4	25	100	0	0	0	0	0	0	861	0
90	144	2640	12	12	6	1	1	4	4	30	20	153	0	0	0	0	0	0	0
91	348	6653	36	12	6	2	1	4	3	40	20	347	0	0	0	0	0	0	0
92	359	4699	11	11	6	1	1	4	3	40	20	356	0	0	0	358	0	0	0
93	358	4330	36	12	6	2	1	6	3	45	20	350	0	359	0	0	0	0	0
94	343	2112	33	11	6	2	1	4	3	35	20	221	0	342	0	0	0	0	0
95	343	1901	24	12	6	1	1	4	3	35	20	342	0	0	0	221	0	0	0
96	222	2904	12	12	6	1	1	4	3	45	20	228	0	221	0	0	0	0	0
97	229	7128	24	12	6	1	1	4	3	40	20	227	0	228	0	0	0	0	0
98	239	2904	30	10	6	2	1	4	3	45	20	238	0	0	0	245	0	0	0
99	244	9029	36	12	6	2	1	6	3	55	20	241	0	245	0	0	0	0	0
100	311	1584	36	12	6	2	1	4	3	35	20	257	0	256	0	333	0	0	0
101	336	3960	48	12	6	3	1	6	3	60	20	254	0	0	0	334	0	0	0
102	310	5966	24	12	6	1	1	4	3	45	20	257	0	333	0	307	0	0	0
103	303	25450	24	12	6	1	1	4	3	55	20	318	0	307	0	345	0	0	0
104	345	20803	24	12	6	1	1	4	4	55	20	331	0	303	0	0	0	0	0
106	313	2640	24	12	6	1	1	4	4	40	100	0	0	0	0	0	0	863	0
108	345	7181	24	12	6	1	1	4	4	50	20	303	0	0	0	331	0	0	0
130	371	2640	12	12	6	1	1	4	4	30	0	0	0	0	0	0	0	0	0
130	158	10560	24	12	6	1	1	4	3	35	20	0	0	159	0	157	0	0	0
130	159	3326	24	12	6	1	1	4	3	35	20	0	0	140	0	158	0	0	0
130	857	2640	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
131	187	1584	24	12	6	1	1	4	1	40	20	181	0	175	0	183	0	0	0
131	210	4066	24	12	6	1	1	4	1	40	20	213	0	211	0	205	0	0	0
132	88	2640	12	12	6	1	1	4	4	30	0	0	0	0	0	0	0	0	0
132	299	15840	10	10	6	1	1	4	3	30	20	302	0	286	0	375	0	297	0
132	313	45883	24	10	6	1	1	4	3	30	20	312	0	106	0	314	0	0	0
132	859	2640	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
133	282	4013	10	10	6	1	1	4	3	50	20	285	0	0	0	283	0	0	0
133	288	11933	10	10	6	1	1	4	3	50	20	0	0	305	0	289	0	0	0
135	308	9557	12	12	6	1	1	4	3	40	20	305	0	307	0	0	0	0	0
135	391	3274	24	12	6	1	1	4	3	40	20	392	0	390	0	0	0	0	0
136	327	4118	24	12	6	1	1	4	3	45	20	323	0	322	0	0	0	0	0
140	141	1109	12	12	6	1	1	4	1	40	20	0	0	179	0	0	0	0	0
140	143	2059	24	12	6	1	1	4	2	35	20	175	0	142	0	0	0	0	0
140	159	7445	24	12	6	1	1	4	2	35	20	159	0	0	0	130	0	0	0
141	140	1109	24	12	6	1	1	4	1	40	20	0	0	143	0	159	0	0	0
141	170	25344	36	12	6	3	1	6	2	60	0	163	0	0	0	171	0	0	0
141	179	8290	48	12	6	3	1	6	2	60	80	185	0	182	0	0	0	0	0
142	143	1109	12	12	6	1	1	4	1	40	20	0	0	175	0	140	0	0	0

New Haven County Link Card File

142	180	8290	36	12	6	3	1	6	2	60	0	186	0	0	0	181	0	0	0
142	190	25344	48	12	6	3	1	6	2	60	80	164	0	172	0	0	0	0	0
143	140	2059	12	12	6	1	1	4	2	35	20	159	0	0	0	141	0	0	0
143	142	1109	12	12	6	1	1	4	1	40	20	0	0	190	0	0	0	0	0
143	175	5914	20	10	6	1	1	4	2	35	20	0	0	187	0	174	0	0	0
144	90	2640	12	12	6	1	1	4	4	30	0	0	0	0	0	0	0	0	0
144	153	5966	24	12	6	1	1	4	3	35	20	0	0	154	0	805	0	0	0
145	153	2587	24	12	6	2	1	4	3	40	20	154	0	0	0	0	0	0	0
146	163	15998	48	12	6	3	1	6	2	60	20	170	0	162	0	0	0	0	0
147	177	528	36	12	6	2	1	6	3	55	20	196	0	178	0	0	0	0	0
148	155	8026	22	11	6	1	1	4	3	30	20	0	0	156	0	154	0	0	0
149	150	2640	12	12	6	1	1	4	4	30	0	0	0	0	0	0	0	0	0
149	156	7867	22	11	6	1	1	4	3	35	20	0	0	157	0	155	0	0	0
149	157	11194	24	12	6	1	1	4	3	35	20	0	0	158	0	156	0	0	0
149	852	2640	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
150	149	2640	24	12	6	1	1	4	4	30	100	852	0	0	0	0	0	0	0
151	87	2640	12	12	6	1	1	4	4	30	0	0	0	0	0	0	0	0	0
151	188	2640	24	12	6	1	1	4	4	30	20	184	0	185	0	182	0	0	0
151	854	2640	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
153	145	2587	24	12	6	2	1	4	3	40	0	0	0	0	0	0	0	0	0
153	144	5966	12	12	6	1	1	4	3	35	0	90	0	0	0	0	0	0	0
153	154	7920	36	12	6	2	1	4	3	40	20	160	0	155	0	0	0	0	0
153	805	2587	24	12	6	2	1	4	3	40	20	0	0	0	0	0	0	0	0
154	153	7920	24	12	6	2	1	4	3	40	20	805	0	0	0	144	0	0	0
154	155	4277	12	12	6	1	1	4	2	40	20	156	0	148	0	0	0	0	0
154	160	7973	36	12	6	2	1	4	3	40	20	161	0	0	0	162	0	0	0
155	148	8026	11	11	6	1	1	4	3	30	0	0	0	0	0	0	0	0	0
155	154	4277	12	12	6	1	1	4	2	40	20	0	0	160	0	153	0	0	0
155	156	6072	24	12	6	1	1	4	2	40	20	157	0	149	0	0	0	0	0
156	149	7867	11	11	6	1	1	4	3	35	20	0	0	150	0	157	0	0	0
156	155	6072	12	12	6	1	1	4	2	40	20	154	0	0	0	148	0	0	0
156	157	13570	24	12	6	1	1	4	2	40	20	158	0	149	0	0	0	0	0
157	149	11194	12	12	6	1	1	4	3	35	20	0	0	156	0	150	0	0	0
157	156	13570	24	12	6	1	1	4	2	40	20	155	0	0	0	149	0	0	0
157	158	4382	24	12	6	1	1	4	2	40	20	159	0	130	0	0	0	0	0
158	130	10560	24	12	6	1	1	4	3	35	20	0	0	371	0	159	0	0	0
158	157	4382	24	12	6	1	1	4	2	40	20	156	0	0	0	149	0	0	0
158	159	11088	24	12	6	1	1	4	2	40	20	0	0	130	0	140	0	0	0
159	130	3326	24	12	6	1	1	4	3	30	20	158	0	0	0	371	0	0	0
159	140	7445	24	12	6	1	1	4	2	35	20	143	0	141	0	0	0	0	0
159	158	11088	12	12	6	1	1	4	2	40	20	157	0	0	0	130	0	0	0
160	154	7973	36	12	6	2	1	4	3	40	20	153	0	0	0	155	0	0	0
160	161	1901	24	10	6	2	1	4	2	40	20	171	0	0	0	166	0	0	0
160	162	3274	10	10	6	1	1	4	3	35	20	165	0	0	0	163	0	0	0
161	160	1901	36	10	6	2	1	4	2	40	35	154	0	162	0	0	0	0	0
161	166	1795	12	12	6	1	1	4	2	50	20	168	0	0	0	0	0	0	0
161	171	3749	36	12	6	2	1	4	2	40	35	172	0	170	0	0	0	0	0
162	160	3274	10	10	6	1	1	4	3	35	20	0	0	154	0	161	0	0	0
162	163	1109	12	12	6	1	1	4	2	40	20	0	0	170	0	0	0	0	0
162	165	264	12	12	6	1	1	4	3	35	20	178	0	0	0	164	0	0	0
163	146	15998	36	12	6	3	1	6	2	60	0	0	0	0	0	0	0	0	0
163	170	7339	48	12	6	3	1	6	2	60	80	141	0	171	0	0	0	0	0
163	162	1109	24	12	6	1	1	4	2	40	15	0	0	160	0	165	0	0	0
164	165	1109	12	12	6	1	1	4	2	40	25	0	0	162	0	178	0	0	0
164	190	7339	36	12	6	3	1	6	2	60	0	142	0	0	0	172	0	0	0
164	806	15998	48	12	6	3	1	6	2	60	80	0	0	0	0	0	0	0	0
165	162	264	12	12	6	1	1	4	3	35	20	160	0	163	0	0	0	0	0
165	164	1109	12	12	6	1	1	4	2	40	20	0	0	806	0	0	0	0	0
165	178	6758	12	12	6	1	1	4	3	35	20	177	0	0	0	176	0	0	0
166	161	1795	12	12	6	1	1	4	2	50	20	0	0	160	0	171	0	0	0
166	168	658	12	12	6	1	1	4	2	50	20	167	0	0	0	0	0	0	0
167	168	3326	12	12	6	1	1	4	2	50	20	166	0	0	0	0	0	0	0
167	189	15365	12	12	6	1	1	4	2	50	20	197	0	196	0	0	0	0	0
168	167	3326	12	12	6	1	1	4	2	50	20	189	0	0	0	0	0	0	0
168	166	658	12	12	6	1	1	4	2	50	20	161	0	0	0	0	0	0	0

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169	344	2640	24	12	6	1	1	4	4	40	100	866	0	0	0	0	0	0	0
170	163	7339	36	12	6	3	1	6	2	60	0	146	0	0	0	162	0	0	0
170	171	1109	24	12	6	1	1	4	2	40	15	0	0	172	0	161	0	0	0
170	141	25344	48	12	6	3	1	6	2	60	80	179	0	140	0	0	0	0	0
171	161	3749	36	12	6	2	1	4	2	40	20	160	0	166	0	0	0	0	0
171	170	1109	12	12	6	1	1	4	2	40	20	0	0	141	0	0	0	0	0
171	172	898	36	12	6	2	1	4	2	40	35	173	0	190	0	0	0	0	0
172	171	898	36	12	6	2	1	4	2	40	20	161	0	0	0	170	0	0	0
172	173	11458	36	12	6	2	1	4	2	40	30	174	0	0	0	204	0	0	0
172	190	1109	12	12	6	1	1	4	2	40	20	0	0	164	0	0	0	0	0
173	172	11458	36	12	6	2	1	4	2	40	28	171	0	0	0	190	0	0	0
173	174	5016	36	10	6	2	1	4	2	40	28	175	0	0	0	205	0	0	0
173	204	17477	24	12	6	1	1	4	2	40	10	0	0	205	0	202	0	0	0
174	173	5016	36	10	6	2	1	4	2	40	25	172	0	204	0	0	0	0	0
174	175	3960	36	12	6	2	1	4	2	40	25	187	0	143	0	0	0	0	0
174	205	12355	24	12	6	1	1	4	3	50	10	207	0	210	0	204	0	0	0
175	143	5914	10	10	6	1	1	4	2	35	20	140	0	0	0	142	0	0	0
175	174	3960	36	12	6	2	1	4	2	40	20	173	0	205	0	0	0	0	0
175	187	11088	36	12	6	2	1	4	2	40	20	183	0	181	0	131	0	0	0
176	178	1109	12	12	6	1	1	4	3	40	10	0	0	165	0	177	0	0	0
176	198	19483	24	12	6	2	1	6	3	55	0	200	0	0	0	197	0	0	0
176	800	528	24	12	6	2	1	6	3	55	71	0	0	0	0	0	0	0	0
177	147	528	24	12	6	2	1	6	3	55	0	0	0	0	0	0	0	0	0
177	178	1109	12	12	6	1	1	4	3	40	10	165	0	176	0	0	0	0	0
177	196	19061	24	12	6	2	1	6	3	55	71	201	0	189	0	0	0	0	0
178	165	6758	12	12	6	1	1	4	3	35	20	162	0	164	0	0	0	0	0
178	176	1109	12	12	6	1	1	4	3	40	20	0	0	0	0	800	0	0	0
178	177	1109	12	12	6	1	1	4	3	40	20	0	0	196	0	0	0	0	0
179	141	8290	36	12	6	3	1	6	2	60	0	170	0	0	0	140	0	0	0
179	182	1109	24	12	6	1	1	4	1	40	20	0	0	188	0	181	0	0	0
179	185	3696	48	12	6	3	1	6	2	60	80	261	0	188	0	0	0	0	0
180	142	8290	48	12	6	3	1	6	2	60	80	190	0	143	0	0	0	0	0
180	181	1109	12	12	6	1	1	4	1	40	20	0	0	182	0	187	0	0	0
180	186	3696	36	12	6	3	1	6	2	60	0	260	0	0	0	184	0	0	0
181	180	1109	12	12	6	1	1	4	1	40	20	0	0	142	0	0	0	0	0
181	182	2640	12	12	6	1	1	4	1	35	20	188	0	179	0	0	0	0	0
181	187	4752	24	12	6	1	1	4	1	35	20	131	0	183	0	175	0	0	0
182	179	1109	12	12	6	1	1	4	1	40	20	0	0	185	0	0	0	0	0
182	181	2640	24	12	6	1	1	4	1	35	20	187	0	0	0	180	0	0	0
182	188	2640	12	12	6	1	1	4	1	35	20	0	0	185	0	184	0	0	0
183	184	2640	12	12	6	1	1	4	1	35	20	188	0	0	0	186	0	0	0
183	187	3115	36	12	6	2	1	4	2	40	20	175	0	131	0	181	0	0	0
183	211	3062	22	11	6	2	1	4	1	45	20	212	0	269	0	210	0	0	0
183	269	8342	36	12	6	2	1	4	2	40	20	81	0	259	0	211	0	0	0
184	183	2640	12	12	6	1	1	4	1	35	20	[illegible]	0	269	0	187	0	0	0
184	186	1109	12	12	6	1	1	4	2	30	20	0	0	180	0	0	0	0	0
184	188	2640	12	12	6	1	1	4	1	35	20	151	0	182	0	185	0	0	0
185	179	3696	36	12	6	3	1	6	2	60	0	141	0	0	0	182	0	0	0
185	188	1109	24	12	6	1	1	4	2	30	20	182	0	184	0	151	0	0	0
185	261	7550	48	12	6	3	1	6	2	60	80	273	0	0	0	259	0	0	0
186	180	3696	48	12	6	3	1	6	2	60	80	142	0	181	0	0	0	0	0
186	184	1109	12	12	6	1	1	4	2	30	20	0	0	183	0	188	0	0	0
186	260	7550	36	12	6	3	1	6	2	60	0	272	0	0	0	259	0	0	0
187	131	1584	12	12	6	1	1	4	1	40	20	210	0	0	0	0	0	0	0
187	175	11088	36	12	6	2	1	4	2	40	20	174	0	0	0	143	0	0	0
187	181	4752	12	12	6	1	1	4	1	35	20	182	0	180	0	0	0	0	0
187	183	3115	36	12	6	2	1	4	2	40	20	269	0	184	0	211	0	0	0
188	151	2112	12	12	6	1	1	4	2	30	0	87	0	0	0	0	0	0	0
188	182	2640	24	12	6	1	1	4	1	35	20	181	0	0	0	179	0	0	0
188	184	2640	12	12	6	1	1	4	1	35	20	183	0	185	0	0	0	0	0
188	185	1109	12	12	6	1	1	4	2	30	20	0	0	261	0	0	0	0	0
189	167	15365	12	12	6	1	1	4	2	50	20	168	0	0	0	0	0	0	0
189	196	1109	12	12	6	1	1	4	3	30	20	0	0	201	0	0	0	0	0
189	197	845	12	12	6	1	1	4	2	50	20	203	0	198	0	0	0	0	0
190	142	25344	36	12	6	3	1	6	2	60	0	180	0	0	0	143	0	0	0

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190	164	7339	48	12	6	3	1	6	2	60	80	806	0	165	0	0	0	0	0
190	172	1109	12	12	6	1	1	4	2	40	25	0	0	173	0	171	0	0	0
196	177	19061	24	12	6	2	1	6	3	55	0	147	0	0	0	178	0	0	0
196	189	1109	12	12	6	1	1	4	3	40	25	0	0	197	0	167	0	0	0
196	201	7234	24	12	6	2	1	6	3	55	71	225	0	202	0	0	0	0	0
197	189	845	12	12	6	1	1	4	2	50	20	167	0	0	0	196	0	0	0
197	198	1109	12	12	6	1	1	4	3	25	20	0	0	176	0	0	0	0	0
197	203	8395	12	12	6	1	1	4	2	50	25	0	0	199	0	338	0	0	0
198	176	19483	24	12	6	2	1	6	3	55	71	800	0	0	0	178	0	0	0
198	197	1109	12	12	6	1	1	4	3	50	25	0	0	203	0	189	0	0	0
198	200	7445	24	12	6	2	1	6	3	55	0	226	0	0	0	199	0	0	0
199	200	1109	12	12	6	1	1	4	3	25	20	0	0	198	0	0	0	0	0
199	202	317	36	12	6	2	1	4	2	40	20	204	0	0	0	201	0	0	0
199	203	3538	36	12	6	2	1	4	2	50	20	338	0	0	0	197	0	0	0
200	198	7445	24	12	6	2	1	6	3	50	71	176	0	197	0	0	0	0	0
200	199	1109	12	12	6	1	1	4	3	50	25	0	0	203	0	202	0	0	0
200	226	20011	24	12	6	2	1	6	3	0	0	232	0	0	0	227	0	0	0
201	196	7234	24	12	6	2	1	6	3	55	0	177	0	0	0	189	0	0	0
201	202	1109	12	12	6	1	1	4	3	40	25	0	0	199	0	204	0	0	0
201	225	20011	24	12	6	2	1	6	3	55	71	231	0	224	0	0	0	0	0
202	199	517	36	12	6	2	1	4	2	40	20	203	0	200	0	0	0	0	0
202	201	1109	12	12	6	1	1	4	3	25	20	0	0	225	0	0	0	0	0
202	204	2904	36	12	6	2	1	4	2	40	20	205	0	173	0	0	0	0	0
203	197	8395	12	12	6	1	1	4	2	50	20	189	0	0	0	198	0	0	0
203	199	3538	36	12	6	2	1	4	2	50	20	202	0	0	0	200	0	0	0
203	338	12302	36	12	6	2	1	4	3	50	20	360	0	339	0	0	0	0	0
204	173	17477	12	12	6	1	1	4	2	40	10	0	0	172	0	174	0	0	0
204	202	2904	36	12	6	2	1	4	2	40	20	199	0	201	0	0	0	0	0
204	205	2746	24	12	6	2	1	4	2	40	20	210	0	174	0	207	0	0	0
205	174	12355	12	12	6	1	1	4	3	50	20	0	0	173	0	175	0	0	0
205	204	2746	36	12	6	2	1	4	2	40	20	202	0	0	0	173	0	0	0
205	207	5386	12	12	6	1	1	4	3	25	20	206	0	0	0	0	0	0	0
205	210	13939	36	12	6	2	1	4	1	40	20	211	0	131	0	213	0	0	0
206	207	475	12	12	6	1	1	4	3	50	20	205	0	0	0	0	0	0	0
206	220	5174	12	12	6	1	1	4	3	50	20	221	0	219	0	339	0	0	0
207	205	5386	12	12	6	1	1	4	3	50	20	174	0	204	0	210	0	0	0
207	206	475	12	12	6	1	1	4	3	50	20	220	0	0	0	0	0	0	0
208	329	817	36	12	6	2	1	6	3	60	20	320	0	330	0	0	0	0	0
210	131	4066	12	12	6	1	1	4	1	40	20	187	0	0	0	0	0	0	0
210	205	13939	36	12	6	2	1	4	1	40	20	204	0	207	0	174	0	0	0
210	211	4541	36	12	6	2	1	4	1	40	20	269	0	183	0	212	0	0	0
210	213	7445	24	12	6	1	1	4	1	35	20	214	0	212	0	218	0	0	0
211	183	3062	33	11	6	2	1	4	1	45	20	184	0	187	0	269	0	0	0
211	210	4541	36	12	6	2	1	4	1	40	20	205	0	213	0	131	0	0	0
211	212	8184	24	12	6	1	1	4	1	45	20	[illegible]	0	0	0	213	0	214	0
211	269	5861	24	12	6	1	1	4	4	40	20	259	0	183	0	81	0	0	0
212	211	8184	24	12	6	1	1	4	1	45	20	183	0	210	0	269	0	0	0
212	213	2534	24	12	6	1	1	4	2	35	20	218	0	214	0	210	0	0	0
212	214	3749	12	12	6	1	1	4	2	40	20	223	0	0	0	213	0	0	0
212	230	18955	24	12	6	1	1	4	2	45	20	233	0	231	0	0	0	0	0
213	210	7445	12	12	6	1	1	4	1	35	20	131	0	205	0	211	0	0	0
213	212	2534	12	12	6	1	1	4	2	35	20	0	0	211	0	214	0	230	0
213	214	739	12	12	6	1	1	4	1	30	20	0	0	212	0	223	0	0	0
213	218	4858	12	12	6	1	1	4	2	40	20	215	0	0	0	0	0	0	0
214	212	3749	12	12	6	1	1	4	2	40	20	211	0	213	0	230	0	0	0
214	213	739	12	12	6	1	1	4	1	30	20	210	0	219	0	212	0	0	0
214	223	3062	12	12	6	1	1	4	2	40	20	228	0	224	0	0	0	0	0
215	218	317	12	12	6	1	1	4	2	35	20	213	0	0	0	0	0	0	0
215	219	2429	24	12	5	1	1	4	2	35	20	220	0	221	0	0	0	0	0
218	213	4858	12	12	6	1	1	4	2	35	20	212	0	210	0	214	0	0	0
218	215	317	12	12	6	1	1	4	2	35	20	219	0	0	0	0	0	0	0
219	215	2429	12	12	6	1	1	4	2	35	20	218	0	0	0	0	0	0	0
219	220	8448	22	11	6	1	1	4	3	35	20	339	0	221	0	206	0	0	0
219	221	10930	24	12	6	1	1	4	3	35	20	343	0	222	0	220	0	0	0
220	206	5174	12	12	6	1	1	4	3	50	20	207	0	0	0	0	0	0	0

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220	219	8448	22	11	6	1	1	4	3	35	20	215	0	0	0	221	0	0	0
220	221	7392	24	12	6	1	1	4	3	50	20	222	0	219	0	343	0	0	0
220	339	16790	24	12	6	1	1	4	3	35	20	0	0	340	0	338	0	0	0
221	219	10930	12	12	6	1	1	4	3	35	20	0	0	220	0	215	0	0	0
221	220	7392	12	12	6	1	1	4	3	50	20	206	0	339	0	219	0	0	0
221	222	11035	12	12	6	1	1	4	3	50	20	0	0	228	0	815	0	0	0
221	343	22440	24	11	6	1	1	4	3	35	20	813	0	95	0	94	0	0	0
222	96	2904	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
222	221	11035	12	12	6	1	1	4	3	50	20	220	0	343	0	219	0	0	0
222	228	5808	12	12	6	1	1	4	2	45	20	223	0	0	0	229	0	0	0
222	815	2904	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
223	214	3062	12	12	6	1	1	4	2	40	20	212	0	213	0	0	0	0	0
223	224	1320	24	10	6	1	1	4	3	40	20	227	0	225	0	0	0	0	0
223	228	2429	10	10	6	1	1	4	2	45	20	222	0	229	0	0	0	0	0
224	223	1320	12	10	6	1	1	4	3	40	20	0	0	228	0	214	0	0	0
224	225	1109	12	12	6	1	1	4	2	40	20	0	0	231	0	0	0	0	0
224	227	686	24	12	6	1	1	4	3	40	20	229	0	226	0	0	0	0	0
225	201	20011	24	12	6	2	1	6	3	55	0	196	0	0	0	202	0	0	0
225	224	1109	12	12	6	1	1	4	2	40	10	0	0	227	0	223	0	0	0
225	231	19114	24	12	6	2	1	6	3	55	71	235	0	230	0	0	0	0	0
226	200	20011	24	12	6	2	1	6	3	55	71	198	0	199	0	0	0	0	0
226	227	1109	12	12	6	1	1	4	2	40	10	0	0	229	0	224	0	0	0
226	232	19114	24	12	6	2	1	6	3	55	0	237	0	0	0	233	0	0	0
227	224	686	12	12	6	1	1	4	3	40	20	223	0	0	0	225	0	0	0
227	226	1109	12	12	6	1	1	4	2	40	20	0	0	200	0	0	0	0	0
227	229	528	24	12	6	1	1	4	3	50	20	816	0	0	0	228	0	0	0
228	222	5808	12	12	6	1	1	4	2	45	20	815	0	0	0	221	0	0	0
228	223	2429	10	10	6	1	1	4	2	45	20	214	0	0	0	224	0	0	0
228	229	1109	12	11	6	1	1	4	3	45	20	0	0	227	0	816	0	0	0
229	97	7128	12	12	6	1	1	4	3	50	20	0	0	0	0	0	0	0	0
229	227	528	24	12	6	1	1	4	3	50	20	224	0	0	0	226	0	0	0
229	228	1109	12	11	6	1	1	4	3	45	20	0	0	222	0	223	0	0	0
229	816	7128	12	12	6	1	1	4	3	50	20	0	0	0	0	0	0	0	0
230	212	18955	12	12	6	1	1	4	2	45	20	211	0	214	0	0	0	213	0
230	231	1109	12	12	6	1	1	4	3	40	20	0	0	235	0	0	0	0	0
230	233	370	20	10	6	2	1	4	2	45	20	238	0	232	0	0	0	0	0
231	225	19114	24	12	6	2	1	6	3	55	0	201	0	0	0	224	0	0	0
231	230	1109	12	12	6	1	1	4	3	40	10	0	0	233	0	212	0	0	0
231	235	6653	24	12	6	2	1	6	3	55	71	242	0	234	0	0	0	0	0
232	226	19114	24	12	6	2	1	6	3	55	71	200	0	227	0	0	0	0	0
232	233	1109	12	12	6	1	1	4	3	40	10	0	0	238	0	230	0	0	0
232	237	6653	24	12	6	2	1	6	3	55	0	241	0	0	0	236	0	0	0
233	230	370	20	10	6	2	1	4	2	45	20	212	0	0	0	231	0	0	0
233	232	1109	12	12	6	1	1	4	3	40	20	0	0	226	0	0	0	0	0
233	238	8976	24	12	6	1	1	4	3	45	20	[illegible]	0	236	0	239	0	0	0
234	235	1109	12	12	6	1	1	4	3	40	20	0	0	242	0	0	0	0	0
234	236	106	22	11	6	2	1	4	2	30	20	238	0	237	0	0	0	0	0
234	370	5702	36	12	6	3	1	4	2	30	0	0	0	0	0	0	0	0	0
235	231	6653	24	12	6	2	1	6	3	55	0	225	0	0	0	230	0	0	0
235	234	1109	12	12	6	1	1	4	3	40	20	0	0	236	0	370	0	0	0
235	242	3696	24	12	6	2	1	6	3	55	71	246	0	243	0	0	0	0	0
236	234	106	22	11	6	2	1	4	2	30	20	370	0	0	0	235	0	0	0
236	237	1109	12	12	6	1	1	4	3	40	20	0	0	232	0	0	0	0	0
236	238	4805	33	11	6	2	1	4	2	30	20	239	0	240	0	233	0	0	0
237	232	6653	24	12	6	2	1	6	3	55	71	226	0	233	0	0	0	0	0
237	236	1109	12	12	6	1	1	4	3	40	20	0	0	238	0	234	0	0	0
237	241	3696	24	12	6	2	1	6	3	55	0	244	0	0	0	240	0	0	0
238	233	8976	15	12	6	1	1	4	3	45	20	230	0	0	0	232	0	0	0
238	236	4805	22	11	6	2	1	4	2	30	20	234	0	0	0	237	0	0	0
238	239	6336	30	10	6	2	1	4	3	45	20	817	0	245	0	0	0	0	0
238	240	1584	12	12	6	1	1	4	3	35	20	243	0	0	0	241	0	0	0
239	98	2904	20	10	6	2	1	4	3	45	20	0	0	0	0	0	0	0	0
239	238	6336	30	10	6	2	1	4	3	45	20	236	0	233	0	240	0	0	0
239	245	1584	12	12	6	1	1	4	3	35	20	247	0	0	0	244	0	0	0
239	817	2904	20	10	6	2	1	4	3	45	20	0	0	0	0	0	0	0	0

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240	238	1584	24	12	6	1	1	4	3	35	20	233	0	239	0	236	0	0	0
240	241	1109	12	12	6	1	1	4	3	40	20	0	0	237	0	0	0	0	0
240	243	1584	12	12	6	1	1	4	3	35	20	248	0	0	0	242	0	0	0
241	237	3696	24	12	6	2	1	6	3	55	71	232	0	236	0	0	0	0	0
241	240	1109	12	12	6	1	1	4	3	40	20	0	0	238	0	243	0	0	0
241	244	6019	24	12	6	2	1	6	3	55	0	99	0	0	0	245	0	0	0
242	235	3696	24	12	6	2	1	6	3	55	0	231	0	0	0	234	0	0	0
242	243	1109	12	12	6	1	1	4	3	40	20	0	0	240	0	248	0	0	0
242	246	6019	24	12	6	2	1	6	3	55	71	818	0	247	0	0	0	0	0
243	240	1584	12	12	6	1	1	4	3	35	20	238	0	241	0	0	0	0	0
243	242	1109	12	12	6	1	1	4	3	40	20	0	0	246	0	0	0	0	0
243	248	3115	12	12	6	1	1	4	3	30	20	0	0	262	0	249	0	0	0
244	99	9029	24	12	6	2	1	6	3	55	0	0	0	0	0	0	0	0	0
244	241	6019	24	12	6	2	1	6	3	55	71	237	0	240	0	0	0	0	0
244	245	1109	12	12	6	1	1	4	3	40	35	0	0	239	0	247	0	0	0
245	239	1584	24	12	6	1	1	4	3	35	20	0	0	817	0	238	0	0	0
245	244	1109	12	12	6	1	1	4	3	40	20	0	0	241	0	0	0	0	0
245	247	1584	12	12	6	1	1	4	3	35	20	249	0	0	0	246	0	0	0
246	242	6019	24	12	6	2	1	6	3	55	0	235	0	0	0	243	0	0	0
246	247	1109	12	12	6	1	1	4	3	40	35	0	0	245	0	249	0	0	0
246	818	9029	24	12	6	2	1	6	3	55	71	0	0	0	0	0	0	0	0
247	245	1584	24	12	6	1	1	4	3	35	20	239	0	244	0	0	0	0	0
247	246	1109	12	12	6	1	1	4	3	40	20	0	0	818	0	0	0	0	0
247	249	3115	12	12	6	1	1	4	3	30	20	250	0	248	0	253	0	0	0
248	243	3115	12	12	6	1	1	4	3	40	20	240	0	242	0	0	0	0	0
248	249	422	24	12	6	1	1	4	3	45	20	253	0	250	0	247	0	0	0
248	262	24552	12	12	6	1	1	4	3	45	20	264	0	0	0	263	0	0	0
249	247	3115	24	12	6	1	1	4	3	30	20	245	0	246	0	0	0	0	0
249	248	422	24	12	6	1	1	4	3	45	20	262	0	243	0	0	0	0	0
249	250	1109	12	12	6	1	1	4	3	45	20	252	0	0	0	251	0	0	0
249	253	5755	12	12	6	1	1	4	3	45	20	256	0	0	0	254	0	0	0
250	249	1109	12	12	6	1	1	4	3	45	20	247	0	253	0	248	0	0	0
250	251	1109	12	12	6	1	1	4	3	40	20	0	0	295	0	0	0	0	0
250	252	1109	12	12	6	1	1	4	3	40	20	0	0	0	0	255	0	0	0
251	250	1109	12	12	6	1	1	4	3	40	10	0	0	249	0	0	0	0	0
251	254	6864	36	12	6	3	1	6	3	65	0	336	0	0	0	253	0	0	0
251	295	18902	48	12	6	4	1	6	3	65	83	263	0	0	0	293	0	0	0
252	250	1109	12	12	6	1	1	4	3	40	10	249	0	0	0	0	0	0	0
252	255	6864	36	12	6	3	1	6	3	65	83	335	0	256	0	0	0	0	0
252	294	18902	48	12	6	4	1	6	3	65	0	264	0	0	0	293	0	0	0
253	249	5755	12	12	6	1	1	4	3	45	20	248	0	247	0	250	0	0	0
253	254	1109	12	12	6	1	1	4	3	40	20	0	0	251	0	0	0	0	0
253	256	898	12	12	6	1	1	4	3	40	20	311	0	0	0	255	0	0	0
254	251	6864	36	12	6	3	1	6	3	65	83	295	0	250	0	0	0	0	0
254	253	1109	12	12	6	1	1	4	3	40	10	0	0	249	0	256	0	0	0
254	336	17213	36	12	6	3	1	6	3	65	0	101	0	334	0	0	0	0	0
255	252	6864	36	12	6	3	1	6	3	65	0	294	0	250	0	0	0	0	0
255	256	1109	12	12	6	1	1	4	3	40	10	0	0	253	0	311	0	0	0
255	335	17213	36	12	6	3	1	6	3	65	83	820	0	334	0	0	0	0	0
256	253	898	12	12	6	1	1	4	3	40	20	249	0	254	0	0	0	0	0
256	255	1109	12	12	6	1	1	4	3	40	20	0	0	335	0	0	0	0	0
256	311	4277	24	12	6	1	1	4	3	50	20	333	0	257	0	819	0	0	0
257	291	7709	24	12	6	1	1	4	2	50	20	0	0	292	0	290	0	0	0
257	292	7867	24	12	6	1	1	4	2	50	20	0	0	293	0	291	0	0	0
257	310	27878	24	12	6	1	1	4	3	50	20	821	0	307	0	333	0	0	0
257	311	9082	24	12	6	1	1	4	2	50	20	819	0	333	0	256	0	0	0
259	260	1954	12	12	6	1	1	4	1	45	20	0	0	186	0	0	0	0	0
259	261	1954	12	12	6	1	1	4	1	45	20	0	0	0	0	273	0	0	0
259	269	1320	12	12	6	1	1	4	3	35	25	211	0	91	0	183	0	0	0
260	186	7550	48	12	6	3	1	6	2	60	80	180	0	184	0	0	0	0	0
260	259	1954	12	12	6	1	1	4	1	45	20	269	0	0	0	0	0	0	0
260	272	634	36	12	6	3	1	6	2	60	0	71	0	0	0	270	0	0	0
261	185	7550	36	12	6	3	1	6	2	60	0	179	0	0	0	188	0	0	0
261	259	1954	12	12	6	1	1	4	1	45	20	269	0	0	0	0	0	0	0
261	273	634	36	12	6	3	1	6	2	60	80	70	0	0	0	0	0	0	0

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262	248	24552	24	12	6	1	1	4	3	45	20	249	0	0	0	243	0	0	0
262	263	1109	12	12	6	1	1	4	2	40	20	0	0	266	0	0	0	0	0
262	264	1109	12	12	6	1	1	4	2	40	20	0	0	0	0	294	0	0	0
263	262	1109	12	12	6	1	1	4	2	40	25	0	0	248	0	0	0	0	0
263	266	8659	36	12	6	3	1	6	3	65	83	270	0	265	0	0	0	0	0
263	295	4752	48	12	6	4	1	6	3	65	0	251	0	293	0	0	0	0	0
264	262	1109	12	12	6	1	1	4	2	40	25	248	0	0	0	0	0	0	0
264	267	8659	36	12	6	3	1	6	3	65	0	271	0	0	0	268	0	0	0
264	294	4752	48	12	6	4	1	6	3	65	83	252	0	293	0	0	0	0	0
265	81	1478	24	12	6	2	1	4	2	40	20	269	0	0	0	80	0	0	0
265	266	1954	24	12	6	2	1	4	1	45	12	0	0	270	0	0	0	0	0
265	268	950	36	12	6	2	1	4	2	40	20	296	0	0	0	267	0	0	0
266	263	8659	36	12	6	3	1	6	3	65	0	295	0	0	0	262	0	0	0
266	265	1954	24	12	6	2	1	4	1	45	10	0	0	81	0	268	0	0	0
266	270	739	48	12	6	4	1	6	3	60	83	273	0	272	0	0	0	0	0
267	264	8659	36	12	6	3	1	6	3	65	83	294	0	0	0	262	0	0	0
267	268	1954	24	12	6	2	1	4	1	45	10	0	0	265	0	296	0	0	0
267	271	739	48	12	6	4	1	6	3	60	0	70	0	0	0	71	0	0	0
268	265	950	36	12	6	2	1	4	2	40	20	81	0	266	0	0	0	0	0
268	267	1954	24	12	6	2	1	4	1	45	20	0	0	264	0	0	0	0	0
268	296	7128	24	12	6	1	1	4	2	35	20	274	0	297	0	0	0	0	0
269	81	1162	24	12	6	2	1	4	2	40	20	265	0	80	0	0	0	0	0
269	183	8342	36	12	6	2	1	4	2	40	20	187	0	211	0	184	0	0	0
269	211	5861	24	12	6	1	1	4	4	40	20	210	0	212	0	183	0	0	0
269	259	1320	12	12	6	1	1	4	3	35	20	261	0	0	0	260	0	0	0
270	266	739	48	12	6	4	1	6	3	60	0	263	0	0	0	265	0	0	0
270	272	1954	36	12	6	2	1	1	2	45	20	260	0	0	0	0	0	0	0
270	273	1954	24	12	6	2	1	1	2	55	20	0	0	0	0	70	0	0	0
271	70	1954	24	12	6	2	1	1	2	55	0	0	0	273	0	276	0	0	0
271	71	1954	24	12	6	2	1	1	2	45	0	0	0	272	0	275	0	0	0
271	267	739	48	12	6	4	1	6	3	60	100	264	0	268	0	0	0	0	0
272	260	634	48	12	6	3	1	6	2	60	100	186	0	259	0	0	0	0	0
272	270	1954	12	12	6	2	1	4	1	45	0	0	0	273	0	266	0	0	0
272	71	634	36	12	6	3	1	6	2	60	0	275	0	0	0	271	0	0	0
273	70	634	48	12	6	3	1	6	2	60	100	276	0	0	0	271	0	0	0
273	261	634	36	12	6	3	1	6	2	60	0	185	0	259	0	0	0	0	0
273	270	1954	12	12	6	2	1	4	1	55	0	266	0	0	0	272	0	0	0
274	275	1109	12	12	6	1	1	4	2	40	20	0	0	71	0	0	0	0	0
274	277	211	24	12	6	1	1	4	2	35	20	298	0	276	0	0	0	0	0
274	296	686	24	12	6	1	1	4	2	35	20	268	0	0	0	297	0	0	0
275	71	11774	36	12	6	2	1	6	2	60	80	272	0	271	0	0	0	0	0
275	274	1109	12	12	6	1	1	4	2	40	10	0	0	277	0	296	0	0	0
275	279	4594	24	12	6	2	1	6	2	60	0	300	0	0	0	278	0	0	0
276	70	11774	24	12	6	2	1	6	2	60	0	273	0	271	0	0	0	0	0
276	277	1109	12	12	6	1	1	4	2	40	10	0	0	298	0	274	0	0	0
276	280	4594	36	12	6	2	1	6	2	60	80	301	0	281	0	0	0	0	0
277	274	211	24	12	6	1	1	4	2	35	20	296	0	0	0	275	0	0	0
277	276	1109	12	12	6	1	1	4	2	40	20	0	0	280	0	0	0	0	0
277	298	5650	24	12	6	1	1	4	2	35	20	375	0	376	0	281	0	0	0
278	279	1109	12	12	6	1	1	4	2	40	20	0	0	275	0	0	0	0	0
278	281	422	12	12	6	1	1	4	1	45	20	298	0	0	0	280	0	0	0
278	287	12883	12	12	6	1	1	4	1	45	20	289	0	0	0	290	0	0	0
279	275	4594	36	12	6	1	1	6	2	60	80	71	0	274	0	0	0	0	0
279	278	1109	12	12	6	1	1	4	2	40	10	0	0	287	0	281	0	0	0
279	300	7656	24	12	6	2	1	6	2	60	0	283	0	302	0	0	0	0	0
280	276	4594	24	12	6	2	1	5	2	60	0	70	0	0	0	277	0	0	0
280	281	1109	12	12	6	1	1	4	2	40	10	0	0	278	0	298	0	0	0
280	301	7656	36	12	6	2	1	6	2	60	80	284	0	302	0	0	0	0	0
281	278	422	24	12	6	1	1	4	1	45	20	287	0	279	0	0	0	0	0
281	280	1109	12	12	6	1	1	4	2	40	20	0	0	301	0	0	0	0	0
281	298	264	24	12	6	1	1	4	1	40	20	376	0	277	0	375	0	0	0
282	133	4013	10	10	6	1	1	4	3	40	10	288	0	0	0	0	0	0	0
282	283	1109	12	12	6	1	1	4	3	40	30	0	0	300	0	0	0	0	0
282	285	475	12	12	6	1	1	4	3	50	20	286	0	0	0	284	0	0	0
283	282	1109	12	12	6	1	1	4	3	40	10	0	0	133	0	285	0	0	0

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283	300	6653	36	12	6	2	1	6	3	60	80	279	0	0	0	302	0	0	0
283	85	9874	24	12	6	2	1	6	3	60	0	390	0	0	0	86	0	0	0
284	285	1109	12	12	6	1	1	4	3	40	30	0	0	282	0	286	0	0	0
284	301	6653	24	12	6	2	1	6	3	60	0	280	0	0	0	302	0	0	0
284	84	9874	36	12	6	2	1	6	3	60	80	393	0	83	0	0	0	0	0
285	282	475	12	12	6	1	1	4	3	50	20	133	0	283	0	0	0	0	0
285	284	1109	12	12	6	1	1	4	3	40	20	0	0	84	0	0	0	0	0
285	286	792	12	12	6	1	1	4	3	30	20	0	0	299	0	83	0	0	0
286	285	792	12	12	6	1	1	4	3	30	20	282	0	284	0	0	0	0	0
286	299	3960	24	12	6	1	1	4	3	35	20	375	0	302	0	297	0	132	0
286	83	10296	24	12	6	1	1	4	3	35	20	86	0	84	0	0	0	0	0
287	278	12883	12	12	6	1	1	4	1	45	20	281	0	0	0	279	0	0	0
287	289	5386	12	12	6	1	1	4	1	45	20	0	0	288	0	290	0	0	0
287	290	3062	12	9	6	1	1	4	2	35	20	0	0	289	0	291	0	0	0
288	133	11933	10	10	6	1	1	4	3	50	20	282	0	0	0	0	0	0	0
288	289	6917	12	12	6	1	1	4	3	50	20	290	0	0	0	287	0	0	0
288	306	12566	24	12	6	1	1	4	4	50	20	307	0	305	0	0	0	0	0
289	287	5386	12	12	6	1	1	4	1	45	20	278	0	290	0	0	0	0	0
289	288	6917	24	12	6	1	1	4	3	50	20	306	0	133	0	0	0	0	0
289	290	4013	24	12	6	1	1	4	3	50	20	291	0	0	0	287	0	0	0
290	287	3062	9	9	6	1	1	4	2	35	20	0	0	278	0	289	0	0	0
290	289	4013	24	12	6	1	1	4	3	50	20	288	0	287	0	0	0	0	0
290	291	6442	24	12	6	1	1	4	3	50	20	292	0	257	0	0	0	0	0
291	257	7709	24	12	6	1	1	4	2	50	20	311	0	310	0	292	0	0	0
291	290	6442	24	12	6	1	1	4	3	50	25	289	0	287	0	0	0	0	0
291	292	2323	24	12	6	1	1	4	3	50	25	293	0	257	0	0	0	0	0
292	257	7867	24	12	6	1	1	4	2	50	20	310	0	0	0	311	0	0	0
292	291	2323	24	12	6	1	1	4	3	50	35	290	0	0	0	257	0	0	0
292	293	653	36	12	6	2	1	4	3	50	35	295	0	294	0	0	0	0	0
293	292	653	36	12	6	2	1	4	3	55	20	291	0	0	0	257	0	0	0
293	294	1109	12	12	6	1	1	4	3	40	20	0	0	252	0	0	0	0	0
293	295	1109	12	12	6	1	1	4	3	40	20	0	0	0	0	263	0	0	0
294	252	18902	48	12	6	4	1	6	3	65	83	255	0	0	0	250	0	0	0
294	264	4752	48	12	6	4	1	6	3	65	0	267	0	262	0	0	0	0	0
294	293	1109	12	12	6	1	1	4	3	40	25	0	0	0	0	292	0	0	0
295	251	18902	48	12	6	4	1	6	3	65	0	254	0	0	0	250	0	0	0
295	263	4752	48	12	6	4	1	6	3	65	83	266	0	262	0	0	0	0	0
295	293	1109	12	12	6	1	1	4	3	40	25	292	0	0	0	0	0	0	0
296	297	26083	12	9	6	1	1	4	2	30	20	299	0	0	0	376	0	0	0
296	268	7128	24	12	6	1	1	4	2	35	20	265	0	267	0	0	0	0	0
296	274	686	24	12	6	1	1	4	2	35	20	277	0	275	0	0	0	0	0
297	296	26083	12	9	6	1	1	4	2	30	20	0	0	274	0	268	0	0	0
297	89	2640	12	12	6	1	1	4	3	25	0	0	0	0	0	0	0	0	0
297	376	2112	12	12	6	1	1	4	3	30	20	375	0	0	0	298	0	0	0
297	299	14731	12	12	6	1	1	4	3	35	20	[illegible]	0	286	0	375	0	132	0
297	861	7000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
298	277	5650	24	12	6	1	1	4	2	35	20	274	0	0	0	276	0	0	0
298	281	264	24	12	6	1	1	4	1	40	20	278	0	280	0	0	0	0	0
298	375	1584	24	12	6	1	1	4	3	35	20	299	0	376	0	0	0	0	0
298	376	1584	12	12	6	1	1	4	3	35	20	0	0	297	0	375	0	0	0
299	132	15840	10	10	6	1	1	4	3	30	20	313	0	88	0	0	0	0	0
299	286	3960	24	12	6	1	1	4	3	35	20	83	0	0	0	285	0	0	0
299	297	14731	12	12	6	1	1	4	3	30	20	296	0	376	0	89	0	0	0
299	375	11986	24	12	6	1	1	4	4	35	20	298	0	0	0	376	0	0	0
299	302	5069	12	12	6	1	1	4	3	30	20	300	0	301	0	0	0	0	0
300	279	7656	36	12	6	2	1	6	2	60	80	275	0	278	0	0	0	0	0
300	283	6653	24	12	6	2	1	6	3	60	0	85	0	0	0	282	0	0	0
300	302	1109	12	12	6	1	1	4	3	40	10	299	0	0	0	0	0	0	0
301	280	7656	24	12	6	2	1	6	2	60	0	276	0	0	0	281	0	0	0
301	284	6653	36	12	6	2	1	6	3	60	80	84	0	285	0	0	0	0	0
301	302	1109	12	12	6	1	1	4	3	40	20	299	0	0	0	0	0	0	0
302	299	5069	12	12	6	1	1	4	3	30	20	297	0	375	0	286	0	132	0
302	300	1109	12	12	6	1	1	4	3	40	20	0	0	0	0	279	0	0	0
302	301	1109	12	12	6	1	1	4	3	40	20	0	0	284	0	0	0	0	0
303	103	25450	12	12	6	1	1	4	3	55	0	0	0	0	0	0	0	0	0

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303	307	16738	12	12	6	1	1	4	4	50	20	306	0	310	0	308	0	0	0
303	318	23074	12	12	6	1	1	4	3	50	20	315	0	0	0	317	0	0	0
303	345	23971	12	12	6	1	1	4	4	50	20	824	0	331	0	0	0	0	0
303	822	25450	12	12	6	1	1	4	3	55	20	0	0	0	0	0	0	0	0
305	86	1056	24	12	6	1	1	4	3	40	20	83	0	0	0	85	0	0	0
305	306	12408	22	11	6	1	1	4	4	50	20	0	0	307	0	288	0	0	0
305	308	11405	24	12	6	1	1	4	3	40	20	135	0	0	0	307	0	0	0
306	288	12566	24	12	6	1	1	4	4	50	20	289	0	0	0	133	0	0	0
306	305	12408	22	11	6	1	1	4	4	50	20	0	0	86	0	308	0	0	0
306	307	1003	24	12	6	1	1	4	4	50	20	303	0	308	0	310	0	0	0
307	303	16738	12	12	6	1	1	4	4	50	20	345	0	318	0	822	0	0	0
307	306	1003	24	12	6	1	1	4	4	50	20	288	0	0	0	305	0	0	0
307	308	16843	24	12	6	1	1	4	3	50	10	0	0	305	0	135	0	0	0
307	310	23338	24	12	6	1	1	4	3	50	20	333	0	821	0	257	0	0	0
308	135	9557	12	12	6	1	1	4	3	40	20	391	0	0	0	0	0	0	0
308	305	11405	24	12	6	1	1	4	3	40	20	86	0	306	0	0	0	0	0
308	307	16843	24	12	6	1	1	4	3	50	10	310	0	303	0	306	0	0	0
309	315	1214	12	12	6	1	1	4	3	45	20	318	0	316	0	0	0	0	0
309	314	1373	24	12	6	1	1	4	3	45	20	313	0	392	0	324	0	0	0
310	102	5966	12	12	6	1	1	4	3	50	20	0	0	0	0	0	0	0	0
310	257	27878	12	12	6	1	1	4	3	50	20	292	0	311	0	291	0	0	0
310	307	23338	24	12	6	1	1	4	3	50	20	308	0	306	0	303	0	0	0
310	333	1637	12	12	6	1	1	4	3	50	20	311	0	334	0	0	0	0	0
310	821	5966	12	12	6	1	1	4	3	50	20	0	0	0	0	0	0	0	0
311	100	1584	24	12	6	2	1	4	3	50	20	0	0	0	0	0	0	0	0
311	256	4277	12	12	6	1	1	4	3	50	20	253	0	255	0	0	0	0	0
311	257	9082	12	12	6	1	1	4	2	50	20	291	0	292	0	310	0	0	0
311	333	21806	12	12	6	1	1	4	3	50	20	310	0	0	0	334	0	0	0
311	819	1584	24	12	6	2	1	4	3	50	20	0	0	0	0	0	0	0	0
312	313	6917	24	12	6	1	1	4	3	30	20	132	0	314	0	106	0	0	0
312	324	1267	12	12	6	1	1	4	3	45	20	314	0	325	0	0	0	326	0
312	344	6072	12	12	6	1	1	4	3	45	20	323	0	169	0	0	0	0	0
313	106	2640	12	12	6	1	1	4	4	40	0	0	0	0	0	0	0	0	0.
313	132	45883	10	10	6	1	1	4	3	30	20	299	0	0	0	88	0	0	0
313	312	6917	24	12	6	1	1	4	3	30	20	0	0	344	0	324	0	0	0
313	314	2640	24	12	6	1	1	4	3	30	20	309	0	324	0	392	0	0	0
313	863	3000	11	11	6	1	1	5	4	25	100	0	0	0	0	0	0	0	0
314	309	1373	12	12	6	1	1	4	3	45	20	315	0	0	0	0	0	0	0
314	392	6547	24	12	6	1	1	4	3	40	20	391	0	0	0	393	0	0	0
314	313	2640	24	12	6	1	1	4	3	30	20	106	0	132	0	312	0	0	0
314	324	5491	24	12	6	1	1	4	3	45	20	312	0	0	0	326	0	325	0
315	309	1214	12	12	6	1	1	4	3	45	20	314	0	0	0	0	0	0	0
315	316	1109	12	12	6	1	1	4	3	40	20	0	0	325	0	0	0	0	0
315	318	528	12	12	6	1	1	4	3	45	20	303	0	317	0	0	0	0	0
316	393	4435	24	12	6	2	1	6	3	60	0	[illegible]	0	0	0	392	0	0	0
316	315	1109	12	12	6	1	1	4	3	40	10	0	0	318	0	309	0	0	0
316	325	5333	36	12	6	2	1	6	3	60	80	321	0	324	0	0	0	0	0
317	390	4435	36	12	6	2	1	6	3	60	80	85	0	391	0	0	0	0	0
317	318	1109	24	12	6	1	1	4	3	40	10	0	0	303	0	315	0	0	0
317	326	5333	24	12	6	2	1	6	3	60	0	320	0	324	0	0	0	0	0
318	303	23074	24	12	6	1	1	4	3	50	20	822	0	345	0	307	0	0	0
318	315	528	12	12	6	1	1	4	3	45	20	309	0	0	0	316	0	0	0
318	317	1109	12	12	6	1	1	4	3	40	20	0	0	390	0	0	0	0	0
319	320	1109	12	12	6	1	1	4	3	40	20	0	0	326	0,	0	0	0	0
319	322	317	24	12	6	1	1	4	3	50	20	323	0	0	0	321	0	0	0
319	337	4752	11	11	6	1	1	4	3	50	20	331	0	0	0	0	0	0	0
320	319	1109	24	12	6	1	1	4	3	40	8	0	0	327	0	322	0	0	0
320	326	16315	36	12	6	2	1	6	3	60	80	317	0	0	0	324	0	0	0
320	329	11299	24	12	6	2	1	6	3	60	0	208	0	0	0	330	0	0	0
321	322	1109	12	12	6	1	1	4	3	40	10	0	0	319	0	323	0	0	0
321	325	16315	24	12	6	2	1	6	3	60	0	315	0	0	0	324	0	0	0
321	328	11299	36	12	6	2	1	6	3	60	80	825	0	332	0	0	0	0	0
322	319	317	24	12	6	1	1	4	3	50	20	337	0	320	0	0	0	0	0
322	321	1109	12	12	6	1	1	4	3	40	20	0	0	328	0	0	0	0	0
322	323	2851	24	12	6	1	1	4	3	40	20	0	0	344	0	327	0	0	0

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323	322	2851	24	12	6	1	1	4	3	40	20	319	0	321	0	0	0	0	0
323	327	10718	20	10	6	1	1	4	3	45	20	826	0	0	0	332	0	0	0
323	344	12408	12	12	6	1	1	4	3	45	20	312	0	0	0	169	0	0	0
324	312	1267	24	12	6	1	1	4	3	45	20	344	0	313	0	0	0	0	0
324	314	5491	24	12	6	1	1	4	3	45	20	392	0	309	0	313	0	0	0
324	325	3168	12	12	6	1	1	4	3	30	20	0	0	321	0	0	0	0	0
324	326	3168	12	12	6	1	1	4	3	30	20	0	0	0	0	317	0	0	0
325	316	5333	24	12	6	2	1	6	3	60	0	393	0	0	0	315	0	0	0
325	321	16315	36	12	6	2	1	6	3	60	80	328	0	322	0	0	0	0	0
325	324	3168	12	12	6	1	1	4	3	30	10	0	0	314	0	312	0	326	0
326	317	5333	36	12	6	2	1	6	3	60	80	390	0	318	0	0	0	0	0
326	320	16315	24	12	6	2	1	6	3	60	0	329	0	0	0	319	0	0	0
326	324	3168	24	12	6	1	1	4	3	30	6	0	0	314	0	312	0	325	0
327	323	10718	24	10	6	1	1	4	3	45	20	344	0	322	0	0	0	0	0
327	332	6283	22	11	6	1	1	4	3	30	20	330	0	328	0	0	0	0	0
327	826	4118	12	12	6	1	1	4	3	45	20	0	0	0	0	0	0	0	0
327	136	4118	12	12	6	1	1	4	3	45	0	0	0	0	0	0	0	0	0
328	321	11299	36	12	6	2	1	6	3	60	0	325	0	0	0	322	0	0	0
328	332	1109	12	12	6	1	1	4	3	40	10	0	0	330	0	327	0	0	0
328	825	817	36	12	6	2	1	6	3	60	90	0	0	0	0	0	0	0	0
329	208	817	24	12	6	2	1	6	3	60	0	0	0	0	0	0	0	0	0
329	320	11299	36	12	6	2	1	6	3	60	80	326	0	319	0	0	0	0	0
329	330	1109	24	12	6	1	1	4	3	40	8	0	0	341	0	332	0	0	0
330	329	1109	12	12	6	1	1	4	3	40	20	0	0	320	0	0	0	0	0
330	332	528	22	11	6	1	1	4	3	30	20	327	0	0	0	328	0	0	0
330	341	6389	11	11	6	1	1	4	3	35	20	331	0	0	0	0	0	0	0
331	345	15682	24	12	6	1	1	4	3	50	20	824	0	0	0	303	0	0	0
331	337	8659	11	11	6	1	1	4	3	50	20	319	0	0	0	0	0	0	0
331	341	10349	11	11	6	1	1	4	3	35	20	330	0	0	0	0	0	0	0
332	327	6283	22	11	6	1	1	4	3	30	20	0	0	323	0	826	0	0	0
332	328	1109	24	12	6	1	1	4	3	40	20	0	0	825	0	0	0	0	0
332	330	528	22	11	6	1	1	4	3	30	20	341	0	329	0	0	0	0	0
333	310	1637	24	12	6	1	1	4	3	50	20	307	0	257	0	821	0	0	0
333	311	21806	12	12	6	1	1	4	3	50	20	256	0	819	0	257	0	0	0
333	334	1584	12	12	6	1	1	4	3	50	20	336	0	335	0	0	0	0	0
334	333	1584	12	12	6	1	1	4	3	25	20	0	0	311	0	310	0	0	0
334	335	1109	12	12	6	1	1	4	3	25	20	0	0	820	0	0	0	0	0
334	336	1109	12	12	6	1	1	4	3	25	20	0	0	0	0	254	0	0	0
335	255	17213	36	12	6	3	1	6	3	65	0	252	0	0	0	256	0	0	0
335	334	1109	12	12	6	1	1	4	3	25	10	333	0	0	0	0	0	0	0
335	820	3960	36	12	6	3	1	6	3	65	83	0	0	0	0	0	0	0	0
336	101	3960	36	12	6	3	1	6	3	65	0	0	0	0	0	0	0	0	0
336	254	17213	36	12	6	3	1	6	3	65	83	251	0	253	0	0	0	0	0
336	334	1109	12	12	6	1	1	4	3	25	10	333	0	0	0	0	0	0	0
337	319	4752	11	11	6	1	1	4	3	50	20	[illegible]	0	0	0	320	0	0	0
337	331	8659	11	11	6	1	1	4	3	50	20	345	0	341	0	0	0	0	0
338	203	12302	36	12	6	2	1	4	3	50	20	199	0	197	0	0	0	0	0
338	360	1003	36	12	6	2	1	4	3	50	20	347	0	361	0	0	0	0	0
338	339	4488	24	12	6	1	1	4	3	17	20	340	0	220	0	0	0	0	0
339	220	16790	24	12	6	1	1	4	3	35	20	219	0	206	0	221	0	0	0
339	338	4488	24	12	6	1	1	4	3	35	20	0	0	360	0	203	0	0	0
339	340	4435	24	12	6	1	1	4	3	35	20	342	0	0	0	349	0	0	0
340	349	6653	12	12	6	1	1	4	3	35	20	350	0	351	0	0	0	0	0
340	339	4435	12	12	6	1	1	4	3	35	20	338	0	0	0	220	0	0	0
340	342	1478	10	12	6	1	1	4	3	35	20	343	0	0	0	356	0	0	0
341	330	6389	11	11	6	1	1	4	3	35	20	332	0	0	0	329	0	0	0
341	331	10349	22	11	6	1	1	4	3	35	20	0	0	345	0	337	0	0	0
342	343	17582	12	12	6	1	1	4	3	35	20	813	0	95	0	94	0	0	0
342	356	6442	12	12	6	1	1	4	3	40	20	359	0	357	0	0	0	0	0
342	340	1478	10	12	6	1	1	4	3	35	20	339	0	349	0	0	0	0	0
343	342	17582	12	12	6	1	1	4	3	35	20	340	0	356	0	0	0	0	0
343	221	22440	12	11	6	1	1	4	3	35	20	219	0	220	0	222	0	0	0
343	813	1901	12	12	6	1	1	4	3	35	20	0	0	0	0	0	0	0	0
343	95	1901	12	12	6	1	1	4	3	35	0	0	0	0	0	0	0	0	0
343	94	2112	22	11	6	2	1	4	3	35	0	0	0	0	0	0	0	0	0

344	169	2640	12	12	6	1	1	4	4	40	0	0	0	0	0	0	0	0	0
344	312	6072	12	12	6	1	1	4	3	45	20	324	0	0	0	313	0	0	0
344	323	12408	24	12	6	1	1	4	3	45	20	327	0	0	0	322	0	0	0
344	866	2640	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
345	303	23971	12	12	6	1	1	4	4	50	20	307	0	822	0	318	0	0	0
345	331	15682	12	12	6	1	1	4	3	50	20	337	0	0	0	341	0	0	0
345	104	20803	24	12	6	1	1	4	4	55	0	0	0	0	0	0	0	0	0
345	108	7181	24	12	6	1	1	4	4	50	0	0	0	0	0	0	0	0	0
345	824	2000	12	12	6	1	1	4	4	55	50	0	0	0	0	0	0	0	0
360	338	1003	36	12	6	2	1	4	3	50	20	203	0	0	0	339	0	0	0
360	361	1109	12	12	6	1	1	4	3	25	8	0	0	351	0	0	0	0	0
360	347	506	36	12	6	2	1	4	3	50	40	348	0	346	0	0	0	0	0
361	360	1109	12	12	6	1	1	4	3	40	30	0	0	347	0	338	0	0	0
361	351	3010	24	12	6	2	1	6	3	55	72	357	0	349	0	0	0	0	0
361	354	4224	24	12	6	2	1	6	3	55	0	0	0	0	0	0	0	0	0
346	808	4224	24	12	6	2	1	6	3	55	72	0	0	0	0	0	0	0	0
346	347	1109	12	12	6	1	1	4	3	40	30	0	0	348	0	360	0	0	0
346	350	3010	24	12	6	2	1	6	3	55	0	358	0	349	0	0	0	0	0
347	346	1109	12	12	6	1	1	4	3	20	10	0	0	808	0	0	0	0	0
347	348	1478	36	12	6	2	1	4	3	50	40	810	0	0	0	809	0	0	0
347	360	506	36	12	6	2	1	4	3	50	40	338	0	0	0	361	0	0	0
348	347	1478	36	12	6	2	1	4	3	50	20	360	0	0	0	346	0	0	0
348	353	817	12	12	6	1	1	4	4	35	0	0	0	0	0	0	0	0	0
348	809	517	12	12	6	1	1	4	4	40	20	0	0	0	0	0	0	0	0
348	91	6653	24	12	6	2	1	4	3	50	0	0	0	0	0	0	0	0	0
348	810	6653	24	12	6	2	1	4	3	50	20	0	0	0	0	0	0	0	0
349	350	1109	12	12	6	1	1	4	3	40	20	0	0	0	0	346	0	0	0
349	351	1109	12	12	6	1	1	4	3	40	20	0	0	357	0	0	0	0	0
349	340	6653	12	12	6	1	1	4	3	35	20	0	0	339	0	342	0	0	0
350	349	1109	12	12	6	1	1	4	3	40	10	340	0	0	0	351	0	0	0
350	346	3010	24	12	6	2	1	6	3	55	72	808	0	347	0	0	0	0	0
350	358	11880	24	12	6	2	1	6	4	55	0	93	0	0	0	359	0	0	0
351	361	3010	24	12	6	2	1	6	3	55	0	354	0	0	0	360	0	0	0
351	349	1109	12	12	6	1	1	4	3	40	10	0	0	350	0	340	0	0	0
351	357	11880	24	12	6	2	1	6	4	55	72	812	0	356	0	0	0	0	0
353	348	817	24	12	6	1	1	4	4	40	20	0	0	347	0	810	0	0	0
354	361	4224	36	12	6	2	1	6	3	55	20	351	0	360	0	0	0	0	0
356	342	6442	12	12	6	1	1	4	3	40	20	0	0	340	0	343	0	0	0
356	357	1109	12	12	6	1	1	4	3	40	20	0	0	812	0	0	0	0	0
356	359	945	12	12	6	1	1	4	3	40	20	811	0	358	0	0	0	0	0
357	356	1109	12	12	6	1	1	4	3	40	10	0	0	359	0	342	0	0	0
357	812	4330	24	12	6	2	1	6	3	55	72	0	0	0	0	0	0	0	0
357	351	11880	24	12	6	2	1	6	4	55	0	361	0	0	0	349	0	0	0
358	93	4330	24	12	6	2	1	6	3	55	0	0	0	0	0	0	0	0	0
358	359	1109	12	12	6	1	1	4	3	40	10	0	0	0	0	356	0	0	0
358	350	11880	24	12	6	2	1	6	4	55	72	346	0	0	0	349	0	0	0
359	811	4699	11	11	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
359	92	4699	11	11	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
359	358	1109	12	12	6	1	1	4	3	40	20	0	0	350	0	0	0	0	0
359	356	945	12	12	6	1	1	4	3	40	20	342	0	0	0	357	0	0	0
370	234	5702	36	12	6	3	1	4	2	30	20	236	0	235	0	0	0	0	0
371	130	2640	36	12	6	1	1	4	4	30	100	0	0	0	0	0	0	857	0
375	299	11986	24	12	6	1	1	4	4	35	20	296	0	297	0	302	0	132	0
375	376	1056	12	12	6	1	1	4	3	25	20	297	0	299	0	0	0	0	0
375	298	1584	24	12	6	1	1	4	3	35	20	277	0	281	0	376	0	0	0
376	297	2112	12	12	6	1	1	4	3	30	20	99	0	296	0	299	0	0	0
376	298	1584	12	12	6	1	1	4	3	35	20	281	0	375	0	277	0	0	0
376	375	1056	12	12	6	1	1	4	3	25	20	0	0	299	0	298	0	0	0
390	85	22757	36	12	6	2	1	6	3	60	80	283	0	86	0	0	0	0	0
390	391	1109	12	12	6	1	1	4	2	45	22	0	0	392	0	135	0	0	0
390	317	4435	24	12	6	2	1	6	3	60	0	326	0	0	0	318	0	0	0
391	135	3274	12	12	6	1	1	4	3	40	20	308	0	0	0	0	0	0	0
391	390	1109	12	12	6	1	1	4	2	45	20	0	0	85	0	0	0	0	0
391	392	898	24	12	6	1	1	4	3	40	20	314	0	393	0	0	0	0	0
392	391	898	24	12	6	1	1	4	3	40	20	135	0	0	0	390	0	0	0

New Haven County Link Card File

```
392 393  1109 12 12  6 1 1 4 2 45     20   0    0 316   0   0   0   0   0
392 314  6547 24 12  6 1 1 4 3 40     20 324    0 313   0 309   0   0   0
393  84 22757 24 12  6 2 1 6 3 60      0 284    0   0   0  83   0   0   0
393 392  1109 12 12  6 1 1 4 2 45     22   0    0 314   0 391   0   0   0
393 316  4435 36 12  6 2 1 6 3 60     80 325    0 315   0   0   0   0   0
99999
```

New Haven County Background Traffic (ADT)

Background Traffic NEW HAVEN COUNTY

95	3	55000	1	146	50	170	50
1	3	7000	1	145	100		
15	3	12000	1	147	100		
8	3	26500	1	354	100		
712	3	7000	1	353	100		
34	3	15000	1	91	100		
334	3	2000	1	92	100		
8	3	17000	1	93	100		
313	3	4500	1	94	100		
115	3	3000	1	95	100		
63	3	6000	1	96	100		
69	3	3500	1	97	100		
10	3	10000	1	98	100		
15	3	16000	1	99	100		
5	3	6000	1	100	100		
91	3	35000	1	101	100		
17	3	3000	1	102	100		
77	3	2250	1	103	100		
79	3	3000	1	104	100		
80	3	2000	1	108	100		
95	3	26000	1	208	50	320	50
1	3	5500	1	136	100		

New Haven County Surge Vulnerable Population File (Cat. 1&2)

New Haven County Weak Storm Vulnerable Evacuees

1501	1	675	1.9	160	30	161	20	155	30	163	20
1502	1	1309	1.9	154	50	148	30	168	20		
1503	1	746	1.9	153	30	90	30	177	20	164	20
1504	1	2022	1.9	148	40	150	40	160	20		
1505	1	2326	1.9	90	30	178	20	203	20	177	30
1506	1	66	1.9	361	100						
1508	1	309	1.9	167	50	199	50				
1509	1	2444	1.9	171	30	190	10	157	30	154	30
1510	1	3203	1.9	157	40	150	10	173	30	166	20
1511	1	2185	1.9	157	40	161	50	163	10		
1512	1	1241	1.9	173	30	168	30	190	20	172	20
1541	1	222	2.2	210	50	131	30	205	20		
1544	1	879	2.2	131	50	210	10	187	20	180	10 179 10
1545	1	898	2.2	179	40	142	40	183	20		
1546	1	194	2.2	187	20	143	30	175	30	140	20
1547	1	1049	2.2	158	50	371	50				
1548	1	227	2.2	371	30	159	30	141	20	142	20
1549	1	2036	2.2	179	30	180	40	187	30		
1550	1	2936	2.2	371	20	205	30	213	30	212	20
1551	1	2278	2.2	371	30	130	10	175	30	210	30
1401	1	218	3.5	260	50	81	50				
1402	1	713	3.5	261	40	70	40	265	20		
1403	1	144	3.5	269	100						
1404	1	1831	3.5	87	70	186	30				
1405	1	505	3.5	87	20	183	50	185	30		
1406	1	95	3.5	183	50	211	50				
1408	1	314	3.5	211	30	212	20	214	30	213	20
1409	1	107	3.5	212	100						
1410	1	41	3.5	213	100						
1413	1	1420	3.5	223	50	218	50				
1419	1	289	3.5	264	40	293	40	292	20		
1421	1	381	3.5	262	30	263	30	294	20	266	20
1422	1	1146	3.5	270	30	271	30	265	20	81	20
1423	1	1472	3.5	296	30	276	30	275	20	277	20
1424	1	195	3.5	296	60	267	40				
1425	1	497	3.5	291	40	292	30	293	30		
142601	1	901	3.5	292	30	291	30	294	20	295	20
142602	1	2187	3.5	296	30	257	30	293	40		
1427	1	779	3.5	80	75	71	25				
1428	1	2393	3.5	80	40	70	40	277	20		
1801	1	4732	1.9	89	70	375	30				
1802	1	2790	1.9	298	40	281	30	278	30		
1803	1	1531	1.9	375	40	280	30	279	30		
1804	1	176	1.9	287	30	289	40	279	30		
1841	1	2726	1.8	286	30	83	40	284	15	283	15
1842	1	367	1.8	301	30	300	30	133	40		
1843	1	2784	1.8	299	50	132	50				
1844	1	2988	1.8	88	70	132	10	286	20		
1845	1	673	1.8	84	30	85	30	305	40		
1846	1	1279	1.8	305	30	83	30	85	40		
1941	1	3077	1.8	169	60	323	20	327	20		
194201	1	356	1.8	321	30	337	30	332	20	341	20
194202	1	189	1.8	331	60	345	40				
1901	1	2045	1.9	312	20	324	20	325	30	326	30
1902	1	2500	1.9	106	60	393	20	309	20		
190301	1	531	1.9	318	30	303	70				

New Haven County Surge Vulnerable Population File (Cat. 3&4)

New Haven County Strong Storm Vulnerable Evacuees

1501	1	1033	1.9	160	30	161	20	155	30	163	20		
1502	1	1824	1.9	154	50	148	30	168	20				
1503	1	866	1.9	153	30	90	30	177	20	164	20		
1504	1	2275	1.9	148	40	150	40	160	20				
1505	1	3395	1.9	90	30	178	20	203	20	177	30		
1506	1	74	1.9	361	100								
1508	1	397	1.9	167	50	199	50						
1509	1	3106	1.9	171	30	190	10	157	30	154	30		
1510	1	4037	1.9	157	40	150	10	173	30	166	20		
1511	1	3922	1.9	157	40	161	50	163	10				
1512	1	1675	1.9	173	30	168	30	190	20	172	20		
1541	1	444	2.2	210	50	131	30	205	20				
1544	1	989	2.2	131	50	210	10	187	20	180	10	179	10
1545	1	1664	2.2	179	40	142	40	183	20				
1546	1	218	2.2	187	20	143	30	175	30	140	20		
1547	1	1512	2.2	158	50	371	50						
1548	1	510	2.2	371	30	159	30	141	20	142	20		
1549	1	3436	2.2	179	30	180	40	187	30				
1550	1	4670	2.2	371	20	205	30	213	30	212	20		
1551	1	3269	2.2	371	30	130	10	175	30	210	30		
1401	1	337	3.5	260	50	81	50						
1402	1	1503	3.5	261	40	70	40	265	20				
1403	1	324	3.5	269	100								
1404	1	3021	3.5	87	70	186	30						
1405	1	970	3.5	87	20	183	50	185	30				
1406	1	213	3.5	183	50	211	50						
1408	1	671	3.5	211	30	212	20	214	30	213	20		
1409	1	240	3.5	212	100								
1410	1	92	3.5	213	100								
1413	1	2850	3.5	223	50	218	50						
1419	1	595	3.5	264	40	293	40	292	20				
1421	1	640	3.5	262	30	263	30	294	20	266	20		
1422	1	1378	3.5	270	30	271	30	265	20	81	20		
1423	1	3045	3.5	296	30	276	30	275	20	277	20		
1424	1	341	3.5	296	60	267	40						
1425	1	1050	3.5	291	40	292	30	293	30				
142601	1	1285	3.5	292	30	291	30	294	20	295	20		
142602	1	2610	3.5	296	30	257	30	293	40				
1427	1	1504	3.5	80	75	71	25						
1428	1	3136	3.5	80	40	70	40	277	20				
1801	1	5436	1.9	89	70	375	30						
1802	1	4096	1.9	298	40	281	30	278	30				
1803	1	2178	1.9	375	40	280	30	279	30				
1804	1	396	1.9	287	30	289	40	279	30				
1841	1	4188	1.8	286	30	83	40	284	15	283	15		
1842	1	561	1.8	301	30	300	30	133	40				
1843	1	3931	1.8	299	50	132	50						
1844	1	3361	1.8	88	70	132	10	286	20				
1845	1	849	1.8	84	30	85	30	305	40				
1846	1	1841	1.8	305	30	83	30	85	40				
1941	1	4103	1.8	169	60	323	20	327	20				
194201	1	628	1.8	321	30	337	30	332	20	341	20		
194202	1	212	1.8	331	60	345	40						
1901	1	2607	1.9	312	20	324	20	325	30	326	30		
1902	1	3146	1.9	106	60	393	20	309	20				
190301	1	832	1.9	318	30	303	70						

New Haven County Non-surge Vulnerable & Mobile Home Population Files

New Haven County Weak Storm Non-vulnerable Evac + Mobile Home Evac

MILFORD	2	940	1.9	177	20	168	20	198	20	173	20	153	20
WESTHAV	2	810	2.2	140	20	175	20	187	20	182	20	140	20
NEWHAV	2	2060	3.5	269	20	261	20	296	20	264	20	291	20
EASTHAV	2	270	1.9	297	20	280	20	279	20	287	20	289	20
BRANFORD	2	890	1.8	83	20	86	20	305	20	133	20	300	20
MADISON	2	240	1.8	323	20	330	20	331	20	345	20	328	20
GUILFORD	2	320	1.9	315	20	308	20	303	20	325	20	326	20

New Haven Strong Storm Non-vulnerable Evacuees

MILFORD	2	1700	1.9	177	20	168	20	198	20	173	20	153	20
WESTHAV	2	1870	2.2	140	20	175	20	187	20	182	20	140	20
NEWHAV	2	5120	3.5	269	20	261	20	296	20	264	20	291	20
EASTHAV	2	650	1.9	297	20	280	20	279	20	287	20	289	20
BRANFORD	2	1240	1.8	83	20	86	20	305	20	133	20	300	20
MADISON	2	590	1.8	323	20	330	20	331	20	345	20	328	20
GUILFORD	2	710	1.9	315	20	308	20	303	20	325	20	326	20

New Haven County POPDIS Input Files (Cat. 3&4)

```
New Haven County Strong Storm during Off-peak Traffic, Rapid Response
&files
filename(1)='nhspop1.prn'
filename(2)='nhsnonv.prn'
filename(3)='nhback.prn'
outfile='nspopE.out'
outprint='nspopE.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.12 frc(3,2)=0.06 frc(3,3)=0.01 frc(3,4)=0.01
/
&timeint
int1(1)=360.0 int1(2)=480.0 int1(3)=520.0 int1(4)=600.0 int1(5)=720.0
int2(1)=0.0 int2(2)=360.0 int2(3)=540.0 int2(4)=600.0 int2(5)=720.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

```
New Haven County Strong Storm during Off-peak Traffic, Moderate Response
&files
filename(1)='nhspop1.prn'
filename(2)='nhsnonv.prn'
filename(3)='nhback.prn'
outfile='nspopE.out'
outprint='nspopE.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.12 frc(3,2)=0.06 frc(3,3)=0.01 frc(3,4)=0.01
/
&timeint
int1(1)=180.0 int1(2)=360.0 int1(3)=420.0 int1(4)=540.0 int1(5)=720.0
int2(1)=0.0 int2(2)=360.0 int2(3)=540.0 int2(4)=600.0 int2(5)=720.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

New Haven County POPDIS Input Files (Cat. 3&4)

```
New Haven County Strong Storm during Off-peak Traffic, Slow Response
&files
filename(1)='nhspop1.prn'
filename(2)='nhsnonv.prn'
filename(3)='nhback.prn'
outfile='nspopE.out'
outprint='nspopE.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.12 frc(3,2)=0.06 frc(3,3)=0.01 frc(3,4)=0.01
/
&timeint
int1(1)=0.0 int1(2)=240.0 int1(3)=320.0 int1(4)=480.0 int1(5)=720.0
int2(1)=0.0 int2(2)=360.0 int2(3)=540.0 int2(4)=600.0 int2(5)=720.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

New Haven County POPDIS Input Files Mid-peak Traffic (Cat. 3&4)

```
NEW HAVEN MIDDAY case, strong Storm, Rapid Response, Mid-Peak
&files
filename(1)='NHSPOP1.prn'
filename(2)='NHsnonv.prn'
filename(3)='NHback.prn'
outfile='NspopM.out'
outprint='NspopM.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.35 frc(3,2)=0.20 frc(3,3)=0.08 frc(3,4)=0.02
/
&timeint
intl(1)=540.0 intl(2)=660.0 intl(3)=700.0 intl(4)=780.0 intl(5)=900.0
int2(1)=0.0 int2(2)=330.0 int2(3)=570.0 int2(4)=690.0 int2(5)=870.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

```
NEW HAVEN MIDDAY case, strong Storm, Moderate Response, Mid-Peak
&files
filename(1)='NHSPOP1.prn'
filename(2)='NHsnonv.prn'
filename(3)='NHback.prn'
outfile='NspopM.out'
outprint='NspopM.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.10 frc(2,4)=0.10
frc(3,1)=0.35 frc(3,2)=0.20 frc(3,3)=0.08 frc(3,4)=0.02
/
&timeint
intl(1)=360.0 intl(2)=540.0 intl(3)=600.0 intl(4)=720.0 intl(5)=900.0
int2(1)=0.0 int2(2)=330.0 int2(3)=570.0 int2(4)=690.0 int2(5)=870.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

New Haven County POPDIS Input Files Mid-peak Traffic (Cat. 3&4)

```
NEW HAVEN MIDDAY Case, Strong Storm, Mid-peak, Slow Response
&files
filename(1)='NHSPOP1.prn'
filename(2)='NHsnonv.prn'
filename(3)='NHback.prn'
outfile='NspopM.out'
outprint='NspopM.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='backgrd'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.35 frc(3,2)=0.20 frc(3,3)=0.08 frc(3,4)=0.02
/
&timeint
intl(1)=180.0 intl(2)=420.0 intl(3)=500.0 intl(4)=660.0 intl(5)=900.0
int2(1)=0.0 int2(2)=330.0 int2(3)=570.0 int2(4)=690.0 int2(5)=870.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

New Haven County POPDIS Input Files Peak Traffic (Cat. 3&4)

```
New Haven Strong Storm during Peak Traffic, Rapid Response
&files
filename(1)='NHSPOP1.prn'
filename(2)='NHsnonv.prn'
filename(3)='NHback.prn'
outfile='NspopR.out'
outprint='NspopR.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.35 frc(3,2)=0.22 frc(3,3)=0.03 frc(3,4)=0.0
/
&timeint
int1(1)=330.0 int1(2)=450.0 int1(3)=490.0 int1(4)=570.0 int1(5)=690.0
int2(1)=0.0 int2(2)=240.0 int2(3)=510.0 int2(4)=690.0 int2(5)=720.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

```
New Haven Strong Storm during Peak Traffic, Moderate Response
&files
filename(1)='NHSPOP1.prn'
filename(2)='NHsnonv.prn'
filename(3)='NHback.prn'
outfile='NspopR.out'
outprint='NspopR.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.35 frc(3,2)=0.22 frc(3,3)=0.03 frc(3,4)=0.0
/
&timeint
int1(1)=150.0 int1(2)=330.0 int1(3)=390.0 int1(4)=510.0 int1(5)=690.0
int2(1)=0.0 int2(2)=240.0 int2(3)=510.0 int2(4)=690.0 int2(5)=720.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

New Haven County POPDIS Input Files Peak Traffic (Cat. 3&4)

```
New Haven Strong Storm during Peak Traffic, Slow Response
&files
filename(1)='NHSPOP1.prn'
filename(2)='NHsnonv.prn'
filename(3)='NHback.prn'
outfile='NspopR.out'
outprint='NspopR.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.35 frc(3,2)=0.22 frc(3,3)=0.03 frc(3,4)=0.0
/
&timeint
int1(1)=0.0 int1(2)=210.0 int1(3)=290.0 int1(4)=450.0 int1(5)=690.0
int2(1)=0.0 int2(2)=240.0 int2(3)=510.0 int2(4)=690.0 int2(5)=720.0
/
146,170,145,147,354,353,91,92,93,94,95,96,97,98,99,100,101,102,103,104,108,208,136,320
```

Annex C: MIDDLESEX/NEW LONDON COMPUTER INPUT FILES

Middlesex/New London County Link Card File

2	3	5333	24	12	6	1	1	4	1	35	20	87	0	0	0	6	0	0	0
3	2	5333	12	12	6	1	1	4	1	35	0	0	0	0	0	0	0	0	0
3	801	5333	12	12	6	1	1	4	1	35	35	0	0	0	0	0	0	0	0
3	6	3538	12	12	6	1	1	4	2	40	10	7	0	0	0	8	0	0	0
3	87	2000	24	12	6	1	1	4	1	35	35	10	0	0	0	0	0	0	0
4	8	9293	24	12	6	2	1	6	2	71	20	14	0	6	0	0	0	0	0
5	802	9293	24	12	6	2	1	6	2	71	80	0	0	0	0	0	0	0	0
5	7	1109	12	12	6	1	1	1	2	35	10	0	0	6	0	22	0	0	0
5	15	11299	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
6	3	3538	12	12	6	1	1	4	2	40	20	0	0	801	0	87	0	0	0
6	7	898	12	12	6	1	1	4	2	40	20	22	0	0	0	5	0	0	0
6	8	1109	12	12	6	1	1	1	2	35	20	0	0	14	0	0	0	0	0
7	22	7762	12	12	6	1	1	4	3	45	20	40	0	0	0	0	0	0	0
7	5	1109	12	12	6	1	1	1	2	35	20	0	0	802	0	0	0	0	0
7	6	898	12	12	6	1	1	4	2	40	20	3	0	8	0	0	0	0	0
8	4	9293	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
8	6	1109	12	12	6	1	1	1	2	35	10	0	0	3	0	7	0	0	0
8	14	11299	24	12	6	2	1	6	2	71	80	20	0	13	0	0	0	0	0
9	87	2640	24	12	6	1	1	5	1	30	100	850	0	0	0	0	0	0	0
10	87	2200	12	12	6	1	1	4	1	35	35	3	0	0	0	0	0	0	0
10	11	7234	12	12	6	1	1	4	1	35	20	13	0	12	0	0	0	0	0
10	12	8554	12	12	6	1	1	4	1	35	35	17	0	0	0	11	0	0	0
11	10	7234	12	12	6	1	1	4	1	35	20	0	0	87	0	12	0	0	0
11	13	2904	12	12	6	1	1	4	1	35	20	16	0	14	0	0	0	0	0
11	12	5227	12	12	6	1	1	4	1	35	20	0	0	10	0	17	0	0	0
12	10	8554	12	12	6	1	1	4	1	35	35	87	0	11	0	0	0	0	0
12	11	5227	12	12	6	1	1	4	1	35	20	0	0	13	0	10	0	0	0
12	17	11141	12	12	6	1	1	4	1	35	35	29	0	0	0	18	0	0	0
13	11	2904	12	12	6	1	1	4	1	35	20	10	0	0	0	12	0	0	0
13	14	1109	12	12	6	1	1	1	2	35	20	0	0	20	0	0	0	0	0
13	16	581	12	12	6	1	1	4	1	40	20	23	0	15	0	0	0	0	0
14	13	1109	12	12	6	1	1	1	2	35	10	0	0	16	0	11	0	0	0
14	8	11299	24	12	6	2	1	6	2	71	10	0	0	0	0	0	0	0	0
14	20	12355	24	12	6	2	1	6	2	71	80	28	0	18	0	0	0	0	0
15	5	11299	24	12	6	2	1	6	2	71	80	802	0	7	0	0	0	0	0
15	16	1109	12	12	6	1	1	1	2	35	18	0	0	23	0	13	0	0	0
15	21	12355	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
16	13	581	12	12	6	1	1	4	1	40	20	11	0	0	0	14	0	0	0
16	15	1109	12	12	6	1	1	1	2	35	20	0	0	5	0	0	0	0	0
16	23	12936	12	12	6	1	1	4	3	45	20	38	0	0	0	0	0	0	0
17	12	11141	12	12	6	1	1	4	1	35	35	10	0	11	0	0	0	0	0
17	18	2270	12	12	6	1	1	4	1	35	20	19	0	20	0	0	0	0	0
17	29	10243	12	12	6	1	1	4	1	35	35	30	0	0	0	26	0	0	0
17	851	5000	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0	0
17	231	2500	11	11	6	1	1	5	4	25	0	0	0	0	0	0	0	0	0
18	17	2270	12	12	6	1	1	4	1	35	20	0	0	12	0	29	0	0	0
18	19	634	12	12	6	1	1	4	2	40	20	24	0	21	0	0	0	0	0
18	20	1109	12	12	6	1	1	1	2	35	15	0	0	28	0	0	0	0	0
19	18	634	12	12	6	1	1	4	2	40	20	17	0	0	0	20	0	0	0
19	24	1742	12	12	6	1	1	4	3	40	20	39	0	25	0	0	0	0	0
19	21	1109	12	12	6	1	1	1	2	35	20	0	0	15	0	0	0	0	0
20	14	12355	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
20	18	1109	12	12	6	1	1	1	2	35	24	0	0	19	0	17	0	0	0
20	28	9029	24	12	6	2	1	6	2	71	80	35	0	26	0	0	0	0	0
21	15	12355	24	12	6	2	1	6	2	71	80	5	0	15	0	0	0	0	0
21	19	1109	12	12	6	1	1	1	2	35	24	0	0	24	0	19	0	0	0
21	27	9029	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
22	7	7762	12	12	6	1	1	4	3	45	20	5	0	5	0	0	0	0	0
22	40	19325	12	12	6	1	1	4	3	45	20	55	0	39	0	803	0	0	0
23	16	12936	12	12	6	1	1	4	3	45	20	13	0	0	0	15	0	0	0
23	38	11352	12	12	6	1	1	4	3	45	20	0	0	63	0	40	0	0	0
24	19	1742	12	12	6	1	1	4	3	40	20	18	0	0	0	21	0	0	0
24	25	6547	12	12	6	1	1	4	2	35	20	25	0	0	0	27	0	0	0
24	39	18163	24	12	6	1	1	4	3	45	20	17	0	0	0	45	0	0	0
25	24	6547	12	12	6	1	1	4	2	35	20	0	0	39	0	19	0	0	0

Middlesex/New London County Link Card File

25	26	634	12	12	6	1	1	4	2	35	20	29	0	0	0	28	0	0	0
25	27	1109	12	12	6	1	1	1	2	35	20	0	0	21	0	0	0	0	0
26	25	634	12	12	6	1	1	4	2	35	20	24	0	27	0	0	0	0	0
26	28	1109	12	12	6	1	1	1	2	35	20	0	0	35	0	0	0	0	0
26	29	1373	12	12	6	1	1	4	2	35	20	0	0	17	0	30	0	0	0
27	21	9029	24	12	6	2	1	6	2	71	80	15	0	19	0	0	0	0	0
27	25	1109	12	12	6	1	1	1	2	35	10	0	0	24	0	26	0	0	0
27	36	10296	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
28	20	9029	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
28	26	1109	12	12	6	1	1	1	2	35	10	0	0	25	0	29	0	0	0
28	35	10296	24	12	6	2	1	6	2	71	80	43	0	34	0	0	0	0	0
29	17	10243	12	12	6	1	1	4	1	35	35	12	0	18	0	0	0	0	0
29	26	1373	24	12	6	1	1	4	2	35	20	25	0	28	0	0	0	0	0
29	30	7075	12	11	6	1	1	4	1	35	40	32	0	31	0	0	0	0	0
30	29	7075	12	11	6	1	1	4	1	35	35	17	0	26	0	0	0	0	0
30	31	19694	12	12	6	1	1	4	2	35	12	32	0	0	0	0	0	0	0
30	32	5280	22	11	6	2	1	4	1	35	35	33	0	31	0	0	0	0	0
30	852	2500	10	10	1	1	1	5	4	10	0	0	0	0	0	0	0	0	0
31	30	19694	24	12	6	1	1	4	2	35	20	852	0	32	0	29	0	0	0
31	32	15576	24	11	6	1	1	4	2	35	20	0	0	33	0	30	0	0	0
32	30	5280	22	11	6	2	1	4	1	35	35	29	0	0	0	31	0	0	0
32	31	15576	12	11	6	1	1	4	2	35	15	30	0	0	0	0	0	0	0
32	33	2218	24	12	6	2	1	4	1	35	35	75	0	0	0	34	0	0	0
33	32	2218	24	12	6	2	1	4	1	35	20	30	0	0	0	31	0	0	0
33	75	5069	12	12	6	1	1	4	1	35	20	41	0	43	0	0	0	0	0
33	34	1531	12	12	6	1	1	4	2	35	20	37	0	0	0	35	0	0	0
34	33	1531	12	12	6	1	1	4	2	35	20	0	0	32	0	75	0	0	0
34	35	1109	12	12	6	1	1	1	2	35	20	0	0	43	0	0	0	0	0
34	37	317	12	12	6	1	1	4	2	35	20	42	0	0	0	36	0	0	0
35	34	1109	12	12	6	1	1	1	2	35	30	0	0	33	0	37	0	0	0
35	28	10296	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
35	43	4752	24	12	6	2	1	6	2	71	80	68	0	75	0	0	0	0	0
36	27	10296	24	12	6	2	1	6	2	71	80	21	0	25	0	0	0	0	0
36	37	1109	12	12	6	1	1	1	2	35	30	0	0	34	0	42	0	0	0
36	41	4752	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
37	36	1109	12	12	6	1	1	1	2	35	20	0	0	27	0	0	0	0	0
37	42	5966	36	12	6	1	1	4	2	40	20	48	0	45	0	47	0	0	0
37	34	317	12	12	6	1	1	4	2	35	20	33	0	35	0	0	0	0	0
38	23	11352	12	12	6	1	1	4	3	45	20	16	0	0	0	0	0	0	0
38	40	18216	12	11	6	1	1	4	4	45	20	803	0	65	0	22	0	0	0
38	63	1848	12	12	6	1	1	4	4	45	20	64	0	0	0	104	0	0	0
39	24	18163	12	12	6	1	1	4	3	45	20	19	0	0	0	25	0	0	0
39	47	4488	24	12	6	1	1	4	3	45	40	0	0	42	0	48	0	0	0
39	46	4224	24	12	6	1	1	4	3	40	20	49	0	0	0	64	0	0	0
40	62	14467	12	12	6	1	1	4	4	45	0	0	0	0	0	0	0	0	0
40	803	14467	12	12	6	1	1	4	4	45	20	0	0	0	0	0	0	0	0
40	65	12197	12	11	6	1	1	4	4	45	20	230	0	104	0	804	0	0	0
40	22	19325	12	12	6	1	1	4	3	45	20	7	0	0	0	0	0	0	0
40	38	18216	12	11	6	1	1	4	4	45	20	63	0	23	0	0	0	0	0
41	36	4752	24	12	6	2	1	6	2	71	80	27	0	37	0	0	0	0	0
41	75	1056	14	14	6	1	1	1	2	35	20	33	0	0	0	0	0	0	0
41	44	3379	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
42	37	5966	12	12	6	1	1	4	2	40	25	34	0	36	0	0	0	0	0
42	45	4594	36	12	6	2	1	4	2	55	30	68	0	0	0	44	0	0	0
42	48	13253	24	12	6	1	1	4	3	40	10	46	0	49	0	0	0	0	0
42	47	11299	36	12	6	2	1	4	2	55	40	48	0	0	0	39	0	0	0
43	75	1056	14	14	6	1	1	1	2	35	15	33	0	0	0	0	0	0	0
43	68	3379	24	12	6	2	1	6	2	71	80	242	0	0	0	45	0	0	0
43	35	4752	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
44	41	3379	24	12	6	2	1	6	2	71	80	36	0	0	0	75	0	0	0
44	45	1848	24	12	6	2	1	1	2	50	35	42	0	0	0	0	0	0	0
44	245	500	48	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
45	44	1848	24	12	6	2	1	1	2	50	20	0	0	41	0	0	0	0	0
45	68	1848	24	12	6	2	1	1	2	50	20	0	0	0	0	242	0	0	0
45	42	4594	48	12	6	2	1	4	2	55	20	47	0	48	0	37	0	0	0

46	39	4224	12	12	6	1	1	4	3	40	20	24	0	0	0	47	0	0	0
46	48	3643	12	12	6	1	1	4	3	40	20	42	0	47	0	49	0	0	0
46	49	3907	24	12	6	1	1	4	3	40	20	51	0	48	0	50	0	0	0
46	64	6336	12	11	6	1	1	4	3	40	20	50	0	0	0	63	0	0	0
47	42	11299	48	12	6	2	1	4	2	55	20	45	0	37	0	48	0	0	0
47	39	4488	12	12	6	1	1	4	3	45	20	24	0	46	0	0	0	0	0
47	48	528	36	12	6	2	1	4	3	55	50	49	0	42	0	46	0	0	0
48	47	528	36	12	6	2	1	4	3	55	50	42	0	39	0	0	0	0	0
48	46	3643	24	12	6	1	1	4	3	40	20	64	0	49	0	39	0	0	0
48	49	6389	36	12	6	2	1	4	3	55	50	50	0	51	0	46	0	0	0
48	42	13253	24	12	6	1	1	4	3	40	20	37	0	47	0	45	0	0	0
49	48	6389	36	12	6	2	1	4	3	55	20	47	0	0	0	42	0	0	0
49	46	3907	12	12	6	1	1	4	3	40	20	39	0	64	0	48	0	0	0
49	51	9979	12	12	6	1	1	4	3	40	10	61	0	0	0	50	0	0	0
49	50	7973	36	12	6	2	1	4	3	55	20	52	0	51	0	64	0	0	0
50	49	7973	36	12	6	2	1	4	3	55	80	48	0	46	0	51	0	0	0
50	64	5861	12	12	6	1	1	4	4	45	10	46	0	63	0	0	0	0	0
50	52	10877	36	12	6	2	1	4	3	55	70	806	0	60	0	104	0	0	0
50	51	4171	12	11	6	1	1	4	4	45	10	0	0	49	0	61	0	0	0
51	49	9979	12	12	6	1	1	4	3	40	20	46	0	50	0	48	0	0	0
51	50	4171	12	11	6	1	1	4	4	45	20	64	0	52	0	49	0	0	0
51	61	6389	12	12	6	1	1	4	4	40	20	59	0	0	0	60	0	0	0
52	50	10877	36	12	6	2	1	4	3	55	90	49	0	64	0	51	0	0	0
52	60	3538	12	10	6	1	1	4	4	45	10	59	0	61	0	0	0	0	0
52	57	4118	24	12	6	2	1	4	3	55	0	0	0	0	0	0	0	0	0
52	806	4118	24	12	6	2	1	4	3	55	60	0	0	0	0	0	0	0	0
52	104	8448	12	12	6	1	1	4	4	45	10	65	0	0	0	63	0	0	0
53	78	6336	12	12	6	1	1	4	2	35	20	77	0	0	0	0	0	0	0
53	54	15576	12	12	6	1	1	4	2	35	20	81	0	55	0	0	0	0	0
53	86	17002	12	12	6	1	1	4	2	35	20	85	0	94	0	0	0	0	0
54	53	15576	12	12	6	1	1	4	2	35	20	0	0	78	0	86	0	0	0
54	55	1109	12	12	6	1	1	1	2	35	20	0	0	225	0	0	0	0	0
54	81	475	12	12	6	1	1	4	2	40	20	82	0	80	0	0	0	0	0
55	54	1109	12	12	6	1	1	1	2	35	45	0	0	81	0	53	0	0	0
55	225	6864	24	12	6	2	1	6	2	71	80	96	0	0	0	0	0	0	0
55	70	16790	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
57	52	4118	24	12	6	2	1	4	3	55	20	50	0	104	0	60	0	0	0
58	59	3960	12	12	6	1	1	4	4	40	20	61	0	60	0	0	0	0	0
59	58	3960	12	12	6	1	1	4	4	40	0	0	0	0	0	0	0	0	0
59	807	3960	12	12	6	1	1	4	4	40	40	0	0	0	0	0	0	0	0
59	60	8078	12	10	6	1	1	4	4	45	20	52	0	0	0	61	0	0	0
59	61	3749	12	12	6	1	1	4	4	40	20	51	0	60	0	0	0	0	0
60	59	8078	12	10	6	1	1	4	4	45	20	0	0	61	0	807	0	0	0
60	61	2376	12	10	6	1	1	4	4	45	20	0	0	51	0	59	0	0	0
60	52	3538	12	10	6	1	1	4	4	45	20	[illegible]	0	806	0	50	0	0	0
61	59	3749	12	12	6	1	1	4	4	40	20	807	0	0	0	60	0	0	0
61	60	2376	12	10	6	1	1	4	4	45	20	0	0	59	0	52	0	0	0
61	51	6389	12	12	6	1	1	4	4	40	20	49	0	50	0	0	0	0	0
62	40	14467	24	12	6	1	1	4	4	45	100	38	0	22	0	0	0	0	0
63	64	10877	12	12	6	1	1	4	4	45	20	0	0	46	0	50	0	0	0
63	104	15312	12	12	6	1	1	4	4	45	20	0	0	52	0	65	0	0	0
63	38	1848	12	12	6	1	1	4	4	45	20	40	0	0	0	23	0	0	0
64	63	10877	12	12	6	1	1	4	4	45	20	38	0	104	0	0	0	0	0
64	50	5861	12	12	6	1	1	4	4	45	20	51	0	49	0	52	0	0	0
64	46	6336	24	12	6	1	1	4	3	40	20	48	0	39	0	49	0	0	0
65	105	2534	12	12	6	1	1	4	4	45	0	0	0	0	0	0	0	0	0
65	804	2534	12	12	6	1	1	4	4	45	30	0	0	0	0	0	0	0	0
65	230	7181	12	12	6	1	1	4	4	45	20	805	0	0	0	0	0	0	0
65	104	17899	12	12	6	1	1	4	4	45	20	52	0	63	0	0	0	0	0
65	40	12197	12	11	6	1	1	4	4	45	20	22	0	803	0	38	0	0	0
66	67	19589	12	12	6	1	1	4	2	35	20	77	0	0	0	0	0	0	0
66	69	739	24	12	6	1	1	4	2	40	20	118	0	73	0	71	0	0	0
66	72	1109	12	12	6	1	1	1	2	35	20	0	0	70	0	0	0	0	0
67	66	19589	12	12	6	1	1	4	2	35	20	69	0	0	0	72	0	0	0
67	77	19853	12	12	6	1	1	4	2	35	20	78	0	0	0	76	0	0	0

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67	853	2500	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0
67	232	2500	11	11	6	1	1	5	4	25	0	0	0	0	0	0	0	0
68	43	3379	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0
68	45	1848	24	12	6	2	1	4	3	50	35	42	0	0	0	0	0	0
68	242	500	48	12	6	2	1	6	2	71	80	243	0	0	0	0	0	0
69	66	739	12	12	6	1	1	4	2	40	20	67	0	72	0	0	0	0
69	71	1109	48	12	6	1	1	1	2	35	20	0	0	244	0	0	0	0
69	118	15154	12	12	6	1	1	4	2	40	20	808	0	0	0	0	0	0
69	73	20011	12	12	6	1	1	4	1	35	20	83	0	0	0	0	0	0
70	72	26083	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0
70	76	1109	12	12	6	1	1	1	2	35	10	77	0	0	0	0	0	0
70	55	16790	24	12	6	2	1	6	2	71	80	225	0	54	0	0	0	0
71	244	500	48	12	6	2	1	6	2	71	80	245	0	0	0	0	0	0
71	69	1109	24	12	6	1	1	1	2	35	10	73	0	0	0	118	0	0
71	74	26083	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0
72	243	500	48	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0
72	66	1109	12	12	6	1	1	1	2	35	10	0	0	67	0	69	0	0
72	70	26083	24	12	6	2	1	6	2	71	80	55	0	76	0	0	0	0
73	69	20011	24	12	6	1	1	4	1	35	20	71	0	118	0	66	0	0
73	83	11616	12	12	6	1	1	4	1	35	20	82	0	0	0	0	0	0
74	71	26083	24	12	6	2	1	6	2	71	80	244	0	69	0	0	0	0
74	76	1109	12	12	6	1	1	1	2	35	10	77	0	0	0	0	0	0
74	80	16790	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0
75	33	5069	12	12	6	1	1	4	1	35	20	32	0	34	0	0	0	0
75	41	1056	12	14	6	1	1	1	2	35	20	0	0	0	0	36	0	0
75	43	1056	12	14	6	1	1	1	2	35	20	0	0	68	0	0	0	0
76	74	1109	12	12	6	1	1	1	2	35	20	0	0	0	0	71	0	0
76	70	1109	12	12	6	1	1	1	2	35	20	0	0	55	0	0	0	0
76	77	2957	12	12	6	1	1	4	2	35	20	0	0	67	0	78	0	0
77	76	2957	12	12	6	1	1	4	2	35	20	74	0	70	0	0	0	0
77	78	9293	12	11	6	1	1	4	2	35	20	53	0	0	0	0	0	0
77	67	19853	12	12	6	1	1	4	2	35	20	66	0	0	0	0	0	0
78	77	9293	12	11	6	1	1	4	2	35	20	67	0	76	0	0	0	0
78	79	2640	12	12	6	1	1	4	3	35	0	0	0	0	0	0	0	0
78	53	6336	12	12	6	1	1	4	2	35	20	86	0	0	0	54	0	0
78	854	2500	10	10	1	1	1	5	4	10	100	0	0	0	0	0	0	0
79	78	2640	24	12	6	1	1	4	3	35	100	854	0	0	0	0	0	0
80	81	1109	12	12	6	1	1	1	2	35	60	0	0	82	0	54	0	0
80	74	16790	24	12	6	2	1	6	2	71	80	71	0	0	0	76	0	0
80	95	6864	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0
81	82	1742	24	12	6	1	1	4	2	40	40	116	0	97	0	83	0	0
81	80	1109	12	12	6	1	1	1	2	35	20	0	0	74	0	0	0	0
81	54	475	12	12	6	1	1	4	2	40	20	53	0	0	0	55	0	0
82	81	1742	24	12	6	2	1	4	2	40	20	54	0	0	0	80	0	0
82	83	15523	12	12	6	1	1	4	1	35	20	73	0	0	0	0	0	0
82	116	24605	12	12	6	1	1	4	2	40	10	0	0	125	0	809	0	0
82	97	1637	12	12	6	1	1	4	1	35	20	99	0	0	0	93	0	0
83	84	2851	12	9	6	1	1	4	4	35	0	0	0	0	0	0	0	0
83	73	11616	12	12	6	1	1	4	1	35	20	69	0	0	0	0	0	0
83	82	15523	24	12	6	1	1	4	1	35	20	97	0	81	0	116	0	0
84	83	2851	12	9	6	1	1	4	4	35	20	0	0	73	0	82	0	0
85	86	2798	12	12	6	1	1	4	2	35	20	53	0	0	0	94	0	0
85	109	6442	24	12	6	1	1	4	1	40	35	90	0	0	0	110	0	0
85	123	19219	12	12	6	1	1	4	1	40	35	89	0	122	0	0	0	0
86	85	2798	12	12	6	1	1	4	2	35	20	0	0	109	0	123	0	0
86	53	17002	12	12	6	1	1	4	2	35	20	78	0	54	0	0	0	0
86	94	21806	12	11	6	1	1	4	2	35	20	90	0	0	0	0	0	0
87	3	2000	12	12	6	1	1	4	2	35	30	801	0	6	0	0	0	0
87	9	2640	12	12	6	1	1	5	3	30	0	0	0	0	0	0	0	0
87	10	2200	24	12	6	1	1	4	2	35	30	12	0	0	0	11	0	0
87	850	3000	12	12	6	1	1	5	3	12	100	0	0	0	0	0	0	0
88	93	3854	24	12	6	2	1	6	3	60	0	0	0	0	0	0	0	0
88	95	1848	24	12	6	2	1	1	2	50	20	0	0	80	0	0	0	0
88	225	1848	24	12	6	2	1	1	2	50	20	0	0	0	0	96	0	0
89	99	845	12	12	6	1	1	4	1	40	35	97	0	106	0	0	0	0

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89	121	1109	12	12	6	1	1	1	2	35	20	0	0	224	0	0	0	0	0
89	123	1848	12	12	6	1	1	4	1	40	35	85	0	0	0	122	0	0	0
90	110	4277	12	12	6	1	1	4	1	40	40	112	0	111	0	107	0	109	0
90	234	2544	22	11	6	1	1	4	1	35	8	115	0	0	0	0	0	0	0
90	109	845	24	12	6	1	1	4	1	40	50	85	0	110	0	0	0	0	0
90	94	13358	12	11	6	1	1	4	2	35	10	86	0	0	0	0	0	0	0
91	122	13675	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
91	107	1320	12	12	6	1	1	4	2	35	40	0	0	110	0	108	0	0	0
91	111	4541	24	12	6	2	1	6	2	71	80	143	0	110	0	0	0	0	0
92	121	13675	24	12	6	2	1	6	2	71	80	224	0	89	0	0	0	0	0
92	108	1320	12	12	6	1	1	4	2	35	55	0	0	107	0	124	0	0	0
92	112	4541	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
93	127	7234	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
93	97	1109	12	12	6	1	1	1	2	35	70	0	0	82	0	99	0	0	0
93	88	3854	24	12	6	2	1	6	3	60	80	225	0	95	0	0	0	0	0
94	86	21806	12	11	6	1	1	4	2	35	20	0	0	85	0	53	0	0	0
94	90	13358	22	11	6	1	1	4	2	35	20	110	0	234	0	109	0	0	0
94	233	4000	11	11	6	1	1	4	2	30	0	0	0	0	0	0	0	0	0
94	855	2000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
95	80	6864	24	12	6	2	1	6	2	71	98	74	0	81	0	0	0	0	0
95	88	1848	24	12	6	2	1	1	2	50	0	0	0	0	0	0	0	0	0
95	224	2112	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
96	225	2112	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
96	98	1848	24	12	6	2	1	1	2	50	10	106	0	0	0	0	0	0	0
96	122	2112	24	12	6	2	1	6	2	71	80	91	0	123	0	0	0	0	0
97	82	1637	24	12	6	1	1	4	1	35	60	83	0	116	0	81	0	0	0
97	93	1109	12	12	6	1	1	1	2	35	20	0	0	88	0	0	0	0	0
97	99	2323	12	12	6	1	1	4	1	40	20	89	0	0	0	106	0	0	0
98	106	3854	24	12	6	2	1	6	3	60	20	126	0	99	0	0	0	0	0
98	96	1848	24	12	6	2	1	1	2	50	0	0	0	0	0	0	0	0	0
98	224	1848	24	12	6	2	1	1	2	50	0	0	0	0	0	0	0	0	0
99	106	1109	12	12	6	1	1	1	2	35	10	0	0	126	0	0	0	0	0
99	97	2323	12	12	6	1	1	4	1	40	70	82	0	93	0	0	0	0	0
99	89	845	12	12	6	1	1	4	1	40	20	123	0	0	0	121	0	0	0
100	118	25608	12	11	6	1	1	4	4	50	20	69	0	0	0	0	0	0	0
101	116	12091	12	12	6	1	1	4	4	45	20	125	0	82	0	0	0	0	0
102	135	22598	12	12	6	1	1	4	4	45	20	132	0	0	0	134	0	0	0
104	65	17899	12	12	6	1	1	4	4	45	20	804	0	230	0	40	0	0	0
104	63	15312	12	12	6	1	1	4	4	45	20	0	0	38	0	64	0	0	0
104	52	8448	12	12	6	1	1	4	4	45	20	60	0	50	0	806	0	0	0
105	65	2534	12	12	6	1	1	4	4	45	20	104	0	40	0	0	0	0	0
106	126	7234	24	12	6	2	1	6	3	70	80	128	0	124	0	0	0	0	0
106	99	1109	12	12	6	1	1	1	2	35	50	0	0	97	0	89	0	0	0
106	98	3854	24	12	6	2	1	6	3	60	0	0	0	0	0	0	0	0	0
107	91	1320	12	12	6	1	1	4	2	35	20	0	0	111	0	0	0	0	0
107	108	634	24	12	6	1	1	4	2	40	40	124	0	0	0	92	0	0	0
107	110	4910	12	12	6	1	1	4	2	40	20	90	0	109	0	112	0	111	0
108	124	12672	12	12	6	1	1	4	2	45	50	125	0	126	0	0	0	0	0
108	92	1320	12	12	6	1	1	4	2	35	20	0	0	121	0	0	0	0	0
108	107	634	12	12	6	1	1	4	2	40	20	110	0	91	0	0	0	0	0
109	90	845	24	12	6	1	1	4	1	40	20	234	0	0	0	110	0	0	0
109	110	3960	22	11	6	1	1	4	1	35	10	112	0	111	0	107	0	90	0
109	85	6442	24	12	6	1	1	4	1	40	40	86	0	123	0	0	0	0	0
110	107	4910	24	12	6	1	1	4	2	40	20	108	0	0	0	91	0	0	0
110	112	4013	12	14	6	1	1	1	2	40	20	0	0	0	0	92	0	0	0
110	111	4013	12	14	6	1	1	1	2	40	20	0	0	143	0	0	0	0	0
110	109	3960	22	11	6	1	1	4	1	35	10	0	0	95	0	90	0	0	0
110	90	4277	24	12	6	1	1	4	1	40	30	109	0	0	0	94	0	0	0
111	91	4541	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
111	110	4013	24	12	6	1	1	1	2	40	15	109	0	0	0	90	0	0	0
111	143	3696	48	12	6	3	1	6	2	71	80	113	0	0	0	130	0	0	0
112	92	4541	24	12	6	2	1	6	2	71	90	121	0	108	0	0	0	0	0
112	110	4013	24	12	6	1	1	1	2	40	35	90	0	109	0	0	0	0	0
112	144	3696	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
113	115	1320	12	12	6	1	1	1	2	30	8	234	0	0	0	0	0	0	0

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113	143	1267	48	12	6	4	1	6	2	71	0	0	0	0	0	0	0	0	0
113	238	500	36	12	6	3	1	6	2	71	80	239	0	0	0	0	0	0	0
114	115	1320	12	12	6	1	1	1	2	30	9	234	0	0	0	0	0	0	0
114	144	1267	48	12	6	4	1	6	2	71	80	112	0	130	0	0	0	0	0
114	137	500	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
115	234	2544	22	11	6	1	1	4	1	30	20	90	0	0	0	0	0	0	0
115	114	1320	12	12	6	1	1	1	2	35	20	0	0	0	0	144	0	0	0
115	113	1320	12	12	6	1	1	1	2	35	35	0	0	238	0	0	0	0	0
116	101	12091	12	12	6	1	1	4	4	45	0	0	0	0	0	0	0	0	0
116	809	12091	12	12	6	1	1	4	4	45	40	0	0	0	0	0	0	0	0
116	82	24605	24	12	6	1	1	4	2	40	15	81	0	83	0	97	0	0	0
116	125	18058	12	12	6	1	1	4	3	45	20	124	0	0	0	127	0	0	0
117	120	1848	12	12	6	1	1	1	2	40	10	0	0	0	0	127	0	0	0
117	128	1848	12	12	6	1	1	1	2	40	70	0	0	133	0	0	0	0	0
117	129	7445	36	12	6	2	1	4	3	55	20	0	0	130	0	131	0	0	0
118	808	25608	12	11	6	1	1	4	4	50	20	0	0	0	0	0	0	0	0
118	100	25608	12	11	6	1	1	4	4	50	20	0	0	0	0	0	0	0	0
118	69	15154	24	12	6	1	1	4	2	40	20	66	0	71	0	73	0	0	0
119	157	4858	12	12	6	1	1	4	1	40	40	156	0	158	0	0	0	0	0
119	163	11405	12	12	6	1	1	4	2	35	20	165	0	0	0	0	0	0	0
119	164	11299	12	12	6	1	1	4	1	40	40	165	0	0	0	169	0	0	0
120	127	17846	24	12	6	2	1	6	3	70	50	93	0	125	0	0	0	0	0
120	117	1848	12	12	6	1	1	1	2	40	70	129	0	0	0	0	0	0	0
120	134	4488	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
121	224	2112	24	12	6	2	1	6	2	71	80	95	0	98	0	0	0	0	0
121	89	1109	12	12	6	1	1	1	2	35	25	0	0	99	0	123	0	0	0
121	92	13675	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
122	96	2112	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
122	123	1109	12	12	6	1	1	1	2	35	25	0	0	89	0	85	0	0	0
122	91	13675	24	12	6	2	1	6	2	71	80	111	0	107	0	0	0	0	0
123	89	1848	12	12	6	1	1	4	1	40	35	99	0	121	0	0	0	0	0
123	122	1109	12	12	6	1	1	1	2	35	20	0	0	91	0	0	0	0	0
123	85	19219	12	12	6	1	1	4	1	40	35	0	0	86	0	109	0	0	0
124	125	528	12	12	6	1	1	4	2	45	70	116	0	127	0	0	0	0	0
124	126	1109	12	12	6	1	1	1	2	35	10	0	0	128	0	0	0	0	0
124	108	12672	12	12	6	1	1	4	2	45	70	107	0	92	0	0	0	0	0
125	116	18058	12	12	6	1	1	4	3	45	40	809	0	0	0	82	0	0	0
125	127	1109	12	12	6	1	1	1	2	35	10	0	0	93	0	0	0	0	0
125	124	528	12	12	6	1	1	4	2	45	40	108	0	0	0	126	0	0	0
126	128	17846	24	12	6	2	1	6	3	70	80	133	0	117	0	0	0	0	0
126	124	1109	12	12	6	1	1	1	2	35	60	0	0	125	0	108	0	0	0
126	106	7234	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
127	120	17846	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
127	125	1109	12	12	6	1	1	1	2	35	80	0	0	116	0	124	0	0	0
127	93	7234	24	12	6	2	1	6	3	70	60	98	0	97	0	0	0	0	0
128	126	17846	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
128	117	1848	12	12	6	1	1	1	2	40	10	129	0	0	0	0	0	0	0
128	133	4488	24	12	6	2	1	6	3	70	90	212	0	132	0	0	0	0	0
129	131	8131	24	12	6	1	1	4	2	35	20	213	0	0	0	132	0	0	0
129	117	7445	36	12	6	2	1	4	3	55	35	120	0	0	0	128	0	0	0
129	130	18163	24	12	6	1	1	4	2	35	35	143	0	144	0	0	0	0	0
130	129	18163	24	12	6	1	1	4	2	35	20	131	0	0	0	117	0	0	0
130	144	1320	12	12	6	1	1	1	2	35	20	0	0	112	0	0	0	0	0
130	143	1320	12	12	6	1	1	1	2	35	20	0	0	0	0	113	0	0	0
131	213	17318	24	12	6	1	1	4	3	35	40	813	0	150	0	208	0	0	0
131	132	2482	12	12	6	1	1	4	4	45	20	135	0	133	0	0	0	0	0
131	129	8131	24	12	6	1	1	4	2	35	20	130	0	117	0	0	0	0	0
132	131	2482	12	12	6	1	1	4	4	45	20	0	0	129	0	213	0	0	0
132	133	1109	12	12	6	1	1	1	3	35	20	0	0	212	0	0	0	0	0
132	135	1531	12	12	6	1	1	4	4	45	20	810	0	134	0	0	0	0	0
133	132	1109	12	12	6	1	1	1	3	35	10	0	0	135	0	131	0	0	0
133	212	15629	24	12	6	2	1	6	3	70	75	812	0	208	0	0	0	0	0
133	128	4488	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
134	211	15629	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
134	135	1109	12	12	6	1	1	1	3	35	8	0	0	810	0	132	0	0	0

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134	120	4488	24	12	6	2	1	6	3	70	80	127	0	0	0	117	0	0	0
135	102	22598	12	12	6	1	1	4	4	45	0	0	0	0	0	0	0	0	0
135	810	22598	12	12	6	1	1	4	4	45	20	0	0	0	0	0	0	0	0
135	134	1109	12	12	6	1	1	1	3	35	20	0	0	120	0	0	0	0	0
135	132	1531	12	12	6	1	1	4	4	45	20	131	0	0	0	133	0	0	0
136	207	5386	12	12	6	1	1	4	3	40	20	0	0	210	0	206	0	0	0
137	147	1320	12	12	6	1	1	1	2	35	15	204	0	0	0	0	0	0	0
137	241	500	36	12	6	3	1	6	2	71	80	240	0	0	0	0	0	0	0
137	148	1954	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
138	162	14256	24	12	6	1	1	4	3	45	20	170	0	159	0	203	0	0	0
138	148	1320	12	12	6	1	1	1	2	35	20	0	0	137	0	0	0	0	0
138	149	1320	12	12	6	1	1	1	2	35	20	0	0	0	0	140	0	0	0
139	148	2165	36	12	6	3	1	6	2	71	80	137	0	138	0	0	0	0	0
139	152	1109	24	12	6	2	1	1	3	45	15	151	0	0	0	0	0	0	0
139	161	8237	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
140	149	2165	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
140	160	8237	36	12	6	3	1	6	2	71	80	166	0	158	0	0	0	0	0
140	152	1267	24	12	6	2	1	1	3	45	25	151	0	0	0	0	0	0	0
141	142	13042	12	10	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
141	820	13042	12	10	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
141	199	10771	12	9	6	1	1	4	3	40	20	198	0	197	0	226	0	0	0
141	226	12989	12	9	6	1	1	4	3	40	20	227	0	199	0	0	0	0	0
142	141	13042	12	10	6	1	1	4	3	40	20	199	0	0	0	226	0	0	0
143	111	3696	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
143	130	1320	12	12	6	1	1	1	2	35	38	129	0	0	0	0	0	0	0
143	113	1267	48	12	6	4	1	6	2	71	80	238	0	115	0	0	0	0	0
144	130	1320	12	12	6	1	1	1	2	35	60	129	0	0	0	0	0	0	0
144	112	3696	36	12	6	3	1	6	2	71	80	92	0	0	0	110	0	0	0
144	114	1267	48	12	6	4	1	6	2	71	0	0	0	0	0	0	0	0	0
146	239	500	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
146	147	1320	12	12	6	1	1	1	2	35	30	204	0	0	0	0	0	0	0
146	149	1954	36	12	6	3	1	6	2	71	80	140	0	0	0	138	0	0	0
147	204	30637	24	12	6	1	1	4	3	40	20	150	0	203	0	0	0	0	0
147	137	1320	12	12	6	1	1	1	2	35	20	0	0	241	0	0	0	0	0
147	146	1320	12	12	6	1	1	1	2	35	20	0	0	0	0	149	0	0	0
148	138	1320	12	12	6	1	1	1	2	35	18	162	0	0	0	0	0	0	0
148	137	1954	36	12	6	3	1	6	2	71	80	241	0	147	0	0	0	0	0
148	139	2165	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
149	146	1954	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
149	138	1320	12	12	6	1	1	1	2	35	40	162	0	0	0	0	0	0	0
149	140	2165	36	12	6	3	1	6	2	71	80	160	0	152	0	0	0	0	0
150	214	1056	12	12	6	1	1	4	4	40	20	814	0	209	0	0	0	0	0
150	213	6336	24	11	6	1	1	4	4	40	20	208	0	813	0	131	0	0	0
150	204	8131	24	12	6	1	1	4	4	40	20	147	0	0	0	203	0	0	0
151	152	2112	24	12	6	2	1	4	3	45	20	[illegible]	0	0	0	140	0	0	0
151	156	10349	12	12	6	1	1	4	1	40	20	157	0	155	0	0	0	0	0
151	154	6494	24	12	6	2	1	4	3	40	20	155	0	0	0	0	0	0	0
152	140	1267	24	12	6	2	1	1	3	45	20	0	0	160	0	0	0	0	0
152	139	1109	24	12	6	2	1	1	3	45	20	0	0	0	0	148	0	0	0
152	151	2112	24	12	6	2	1	4	3	45	20	156	0	154	0	0	0	0	0
153	154	5227	24	12	6	1	1	4	3	35	100	0	0	0	0	857	0	0	0
154	153	5227	12	12	6	1	1	4	3	35	0	0	0	0	0	0	0	0	0
154	155	7762	12	12	6	1	1	4	3	35	20	156	0	0	0	0	0	0	0
154	151	6494	24	12	6	2	1	4	3	40	20	0	0	156	0	152	0	0	0
154	857	3000	10	10	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
155	154	7762	12	12	6	1	1	4	3	35	20	0	0	151	0	0	0	0	0
155	156	6230	24	11	6	1	1	4	3	35	20	0	0	157	0	151	0	0	0
156	157	2904	12	12	6	1	1	4	1	40	20	119	0	0	0	158	0	0	0
156	155	6230	12	11	6	1	1	4	3	35	10	154	0	0	0	0	0	0	0
156	151	10349	12	12	6	1	1	4	1	40	20	152	0	0	0	154	0	0	0
157	156	2904	12	12	6	1	1	4	1	40	20	151	0	0	0	155	0	0	0
157	158	5260	12	12	6	1	1	4	2	35	20	159	0	0	0	160	0	0	0
157	119	4858	12	12	6	1	1	4	1	40	20	164	0	153	0	0	0	0	0
158	157	5280	12	12	6	1	1	4	2	35	20	0	0	156	0	119	0	0	0
158	159	845	24	12	6	2	1	4	2	40	35	152	0	0	0	161	0	0	0

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158	160	1320	12	12	6	1	1	1	2	35	20	0	0	166	0	0	0	0	0
159	162	7392	24	12	6	1	1	4	3	40	20	203	0	170	0	138	0	0	0
159	161	1320	12	12	6	1	1	1	2	35	20	0	0	139	0	0	0	0	0
159	158	845	24	12	6	2	1	4	2	40	20	157	0	160	0	0	0	0	0
160	166	13622	36	12	6	3	1	6	2	71	80	172	0	169	0	0	0	0	0
160	158	1320	12	12	6	1	1	1	2	35	20	0	0	157	0	159	0	0	0
160	140	8237	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
161	159	1320	12	12	6	1	1	1	2	35	10	0	0	158	0	162	0	0	0
161	139	8237	36	12	6	3	1	6	2	71	80	148	0	0	0	152	0	0	0
161	167	13622	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
162	203	24077	24	12	6	1	1	4	3	40	20	209	0	206	0	204	0	0	0
162	138	14256	12	12	6	1	1	4	3	45	20	149	0	148	0	0	0	0	0
162	170	13781	12	12	6	1	1	4	3	45	20	177	0	168	0	0	0	0	0
162	159	7392	12	12	6	1	1	4	3	40	20	158	0	161	0	0	0	0	0
163	119	11405	24	12	6	1	1	4	2	35	20	0	0	164	0	157	0	0	0
163	165	13147	24	11	6	1	1	4	2	35	20	0	0	171	0	164	0	0	0
163	858	5000	10	10	1	1	1	5	3	10	0	0	0	0	0	0	0	0	0
164	169	6600	12	12	6	1	1	4	2	35	20	168	0	0	0	166	0	0	0
164	119	11299	12	12	6	1	1	4	1	40	20	157	0	0	0	163	0	0	0
164	165	2006	12	12	6	1	1	4	1	40	20	171	0	163	0	0	0	0	0
165	163	13147	12	11	6	1	1	4	2	35	20	119	0	858	0	0	0	0	0
165	164	2006	12	12	6	1	1	4	1	40	30	119	0	169	0	0	0	0	0
165	171	3643	12	12	6	1	1	4	1	40	30	235	0	0	0	173	0	0	0
166	160	13622	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
166	169	1320	12	12	6	1	1	1	2	35	25	0	0	164	0	168	0	0	0
166	172	8923	24	12	6	2	1	6	2	71	80	178	0	173	0	0	0	0	0
167	168	1320	12	12	6	1	1	1	2	35	10	0	0	169	0	170	0	0	0
167	161	13622	36	12	6	3	1	6	2	71	80	139	0	159	0	0	0	0	0
167	175	8923	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
168	170	6283	12	10	6	1	1	4	2	35	20	0	0	177	0	162	0	0	0
168	167	1320	12	12	6	1	1	1	2	35	20	0	0	161	0	0	0	0	0
168	169	1003	12	12	6	1	1	4	2	35	20	164	0	166	0	0	0	0	0
169	168	1003	12	12	6	1	1	4	2	35	20	170	0	0	0	167	0	0	0
169	166	1320	12	12	6	1	1	1	2	35	20	0	0	172	0	0	0	0	0
169	164	6600	12	12	6	1	1	4	2	35	20	0	0	119	0	165	0	0	0
170	177	4066	12	12	6	1	1	4	3	45	20	196	0	176	0	0	0	0	0
170	162	13781	24	12	6	1	1	4	3	45	20	138	0	203	0	159	0	0	0
170	168	6283	12	10	6	1	1	4	2	35	20	169	0	167	0	0	0	0	0
171	173	8712	12	11	6	1	1	4	2	35	20	174	0	172	0	0	0	0	0
171	165	3643	12	12	6	1	1	4	1	35	20	164	0	0	0	163	0	0	0
171	235	7678	12	12	6	1	1	4	1	40	20	182	0	0	0	0	0	0	0
172	173	1320	12	12	6	1	1	1	2	35	55	0	0	174	0	171	0	0	0
172	166	8923	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
172	178	12883	24	12	6	2	1	6	2	71	80	193	0	180	0	0	0	0	0
173	172	1320	12	12	6	1	1	1	2	35	20	0	0	178	0	0	0	0	0
173	174	1109	12	12	6	1	1	4	2	35	20	176	0	175	0	0	0	0	0
173	171	8712	12	11	6	1	1	4	2	35	20	0	0	165	0	235	0	0	0
174	176	4488	12	12	6	1	1	4	2	35	20	0	0	179	0	177	0	0	0
174	175	1320	12	12	6	1	1	1	2	35	20	0	0	167	0	0	0	0	0
174	173	1109	12	12	6	1	1	4	2	40	20	171	0	0	0	172	0	0	0
175	174	1320	12	12	6	1	1	1	2	35	7	0	0	176	0	173	0	0	0
175	167	8923	24	12	6	2	1	6	2	71	90	161	0	168	0	0	0	0	0
175	181	12883	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
176	177	2640	12	11	6	1	1	4	2	40	20	0	0	196	0	170	0	0	0
176	174	4488	12	12	6	1	1	4	2	35	20	173	0	0	0	175	0	0	0
176	179	12408	12	11	6	1	1	4	3	40	20	180	0	191	0	0	0	0	0
177	196	7709	12	12	6	1	1	4	3	45	20	200	0	197	0	0	0	0	0
177	176	2640	12	11	6	1	1	4	2	40	20	179	0	174	0	0	0	0	0
177	170	4066	12	12	6	1	1	4	3	45	20	162	0	0	0	168	0	0	0
178	180	1320	12	12	6	1	1	1	2	35	55	0	0	184	0	179	0	0	0
178	193	18744	24	12	6	2	1	6	2	71	80	219	0	191	0	0	0	0	0
178	172	12883	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
179	176	12408	12	11	6	1	1	4	3	40	20	177	0	0	0	174	0	0	0
179	181	1320	12	12	6	1	1	1	2	35	20	0	0	175	0	0	0	0	0
179	180	1214	12	12	6	1	1	4	3	40	20	184	0	178	0	0	0	0	0

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180	179	1214	12	12	6	1	1	4	3	40	20	176	0	0	0	181	0	0	0
180	178	1320	12	12	6	1	1	1	2	35	20	0	0	193	0	0	0	0	0
180	184	23074	12	11	6	1	1	4	3	40	50	0	0	183	0	187	0	0	0
181	179	1320	12	12	6	1	1	1	2	35	10	0	0	180	0	176	0	0	0
181	194	18744	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
181	175	12883	24	12	6	2	1	6	2	71	80	167	0	174	0	0	0	0	0
182	235	7678	12	12	6	1	1	4	1	40	35	171	0	0	0	0	0	0	0
182	183	6178	12	12	6	1	1	4	1	40	35	184	0	186	0	0	0	0	0
182	186	3960	12	10	6	1	1	4	3	35	20	183	0	0	0	0	0	0	0
183	182	6178	12	12	6	1	1	4	1	40	30	235	0	0	0	186	0	0	0
183	186	3960	12	10	6	1	1	4	3	35	20	182	0	0	0	0	0	0	0
183	184	16685	12	12	6	1	1	4	1	40	30	187	0	0	0	180	0	0	0
184	183	16685	12	12	6	1	1	4	1	40	35	182	0	0	0	186	0	0	0
184	180	23074	12	11	6	1	1	4	3	40	10	179	0	0	0	178	0	0	0
184	187	2429	24	12	6	1	1	4	1	40	45	818	0	0	0	188	0	0	0
185	187	834	24	12	6	1	1	4	1	40	20	184	0	188	0	0	0	0	0
186	182	3960	20	10	6	1	1	4	3	35	20	0	0	183	0	235	0	0	0
186	183	3960	20	10	6	1	1	4	3	35	20	0	0	184	0	182	0	0	0
187	184	2429	24	12	6	1	1	4	1	40	20	183	0	180	0	0	0	0	0
187	188	6811	12	12	6	1	1	4	3	40	10	190	0	819	0	0	0	0	0
187	185	834	12	12	6	1	1	4	1	40	0	0	0	0	0	0	0	0	0
187	818	634	12	12	6	1	1	4	1	40	40	0	0	0	0	0	0	0	0
188	187	6811	24	12	6	1	1	4	3	40	20	0	0	184	0	818	0	0	0
188	189	2270	12	12	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
188	819	2270	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
188	190	2798	12	12	6	1	1	4	3	40	20	191	0	198	0	0	0	0	0
189	188	2270	12	12	6	1	1	4	3	40	20	0	0	190	0	187	0	0	0
190	188	2798	12	12	6	1	1	4	3	40	20	187	0	0	0	819	0	0	0
190	198	7920	12	11	6	1	1	4	3	40	20	199	0	0	0	195	0	0	0
190	191	4541	12	12	6	1	1	4	3	40	20	192	0	0	0	193	0	0	0
191	190	4541	12	12	6	1	1	4	3	40	50	188	0	0	0	198	0	0	0
191	193	1320	12	12	6	1	1	1	2	35	10	0	0	219	0	0	0	0	0
191	192	845	12	12	6	1	1	4	3	40	50	195	0	0	0	194	0	0	0
192	191	845	12	12	6	1	1	4	3	40	20	190	0	193	0	0	0	0	0
192	194	1320	12	12	6	1	1	1	2	35	20	0	0	181	0	0	0	0	0
192	195	264	12	12	6	1	1	4	3	40	20	197	0	198	0	0	0	0	0
193	178	18744	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
193	191	1320	12	12	6	1	1	1	2	35	70	0	0	190	0	192	0	0	0
193	219	19061	24	12	6	2	1	6	2	71	80	821	0	220	0	0	0	0	0
194	181	18744	24	12	6	2	1	6	2	71	80	175	0	179	0	0	0	0	0
194	192	1320	12	12	6	1	1	1	2	35	40	0	0	191	0	195	0	0	0
194	228	19061	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
195	197	4488	12	12	6	1	1	4	3	40	20	201	0	199	0	196	0	0	0
195	198	2746	12	11	6	1	1	4	3	40	20	0	0	190	0	199	0	0	0
195	192	264	12	12	6	1	1	4	3	40	20	[illegible]	0	194	0	0	0	0	0
196	177	7709	12	12	6	1	1	4	3	45	20	170	0	0	0	176	0	0	0
196	197	24710	12	12	6	1	1	4	3	45	20	199	0	195	0	201	0	0	0
196	200	18533	12	9	6	1	1	4	3	45	50	202	0	201	0	0	0	0	0
197	196	24710	12	12	6	1	1	4	3	45	20	0	0	200	0	177	0	0	0
197	201	10982	12	12	6	1	1	4	3	40	60	202	0	0	0	200	0	0	0
197	199	4435	12	12	6	1	1	4	3	45	20	226	0	198	0	141	0	0	0
197	195	4488	12	12	6	1	1	4	3	40	60	192	0	0	0	198	0	0	0
198	199	4013	12	12	6	1	1	4	3	40	20	141	0	226	0	197	0	0	0
198	195	2746	12	11	6	1	1	4	3	40	20	0	0	197	0	192	0	0	0
198	190	7920	12	11	6	1	1	4	3	40	20	198	0	191	0	0	0	0	0
199	141	10771	12	9	6	1	1	4	3	40	20	820	0	0	0	0	0	0	0
199	197	4435	12	12	6	1	1	4	3	45	20	196	0	201	0	195	0	0	0
199	226	13728	12	12	6	1	1	4	3	45	20	0	0	227	0	141	0	0	0
199	198	4013	12	12	6	1	1	4	3	40	20	190	0	195	0	0	0	0	0
200	196	18533	12	9	6	1	1	4	3	45	60	177	0	0	0	197	0	0	0
200	202	3274	12	9	6	1	1	4	3	40	20	205	0	201	0	0	0	0	0
200	201	4805	12	9	6	1	1	4	3	35	20	0	0	197	0	202	0	0	0
201	200	4805	12	9	6	1	1	4	3	35	15	0	0	202	0	196	0	0	0
201	202	5808	12	12	6	1	1	4	3	40	30	0	0	205	0	200	0	0	0
201	197	10982	12	12	6	1	1	4	3	40	30	195	0	196	0	199	0	0	0

Middlesex/New London County Link Card File

202	205	4066	12	12	6	1	1	4	3	40	20	817	0	0	0	206	0	0	0
202	200	3274	12	9	6	1	1	4	3	40	20	196	0	0	0	201	0	0	0
202	201	5808	12	12	6	1	1	4	3	40	40	197	0	200	0	0	0	0	0
203	162	24077	24	12	6	1	1	4	3	40	20	159	0	138	0	170	0	0	0
203	204	15418	24	11	6	1	1	4	3	50	20	0	0	150	0	147	0	0	0
203	209	6758	12	12	6	1	1	4	4	45	50	210	0	0	0	214	0	0	0
203	206	23126	12	9	6	1	1	4	3	45	20	0	0	205	0	207	0	0	0
204	150	8131	24	12	6	1	1	4	4	40	70	214	0	0	0	213	0	0	0
204	203	15418	22	11	6	1	1	4	3	50	10	206	0	162	0	209	0	0	0
204	147	34637	24	12	6	1	1	4	3	40	20	146	0	137	0	0	0	0	0
205	202	4066	12	12	6	1	1	4	3	40	20	200	0	0	0	201	0	0	0
205	216	9398	12	12	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
205	817	9398	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
205	206	17635	12	12	6	1	1	4	3	40	40	207	0	0	0	203	0	0	0
206	205	17635	12	12	6	1	1	4	3	40	20	0	0	202	0	817	0	0	0
206	207	10560	12	12	6	1	1	4	3	40	40	210	0	816	0	0	0	0	0
206	203	23126	20	10	6	1	1	4	3	45	20	204	0	209	0	162	0	0	0
207	136	5386	12	12	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
207	816	5386	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
207	210	5280	12	12	6	1	1	4	3	40	20	815	0	0	0	209	0	0	0
207	206	10560	12	12	6	1	1	4	3	40	20	205	0	203	0	0	0	0	0
208	211	1320	12	12	6	1	1	1	3	35	20	0	0	0	0	134	0	0	0
208	212	1109	12	12	6	1	1	1	3	35	20	0	0	812	0	0	0	0	0
208	213	3168	24	11	6	1	1	4	4	40	20	150	0	131	0	813	0	0	0
209	210	2640	12	12	6	1	1	4	4	40	20	815	0	207	0	0	0	0	0
209	214	4013	12	10	6	1	1	4	4	40	20	0	0	814	0	150	0	0	0
209	203	6758	24	12	6	1	1	4	4	40	20	162	0	204	0	206	0	0	0
210	209	2640	12	12	6	1	1	4	4	40	20	203	0	214	0	0	0	0	0
210	215	5280	12	12	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
210	815	5280	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
210	207	5280	12	12	6	1	1	4	3	40	20	206	0	0	0	816	0	0	0
211	229	6072	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
211	208	1109	12	12	6	1	1	1	3	35	10	213	0	0	0	0	0	0	0
211	134	15629	24	12	6	2	1	6	3	70	80	120	0	135	0	0	0	0	0
212	133	15629	24	12	6	2	1	6	3	70	0	0	0	0	0	0	0	0	0
212	208	1109	12	12	6	1	1	1	3	35	10	0	0	213	0	0	0	0	0
212	812	6072	24	12	6	2	1	6	3	70	75	0	0	0	0	0	0	0	0
213	813	4963	12	12	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
213	218	4963	12	12	6	1	1	4	3	40	0	0	0	0	0	0	0	0	0
213	208	3168	12	11	6	1	1	4	4	40	10	211	0	0	0	212	0	0	0
213	150	6336	12	11	6	1	1	4	4	40	20	0	0	204	0	214	0	0	0
213	131	17318	12	12	6	1	1	4	3	35	20	129	0	132	0	0	0	0	0
214	150	1056	12	12	6	1	1	4	4	40	20	204	0	213	0	0	0	0	0
214	217	3432	12	12	6	1	1	4	4	40	0	0	0	0	0	0	0	0	0
214	814	3432	12	12	6	1	1	4	4	40	20	0	0	0	0	0	0	0	0
214	209	4013	12	10	6	1	1	4	4	40	10	0	0	203	0	210	0	0	0
215	210	5280	12	12	6	1	1	4	3	40	20	209	0	0	0	207	0	0	0
216	205	9398	12	12	6	1	1	4	3	40	20	202	0	206	0	0	0	0	0
217	214	3432	12	12	6	1	1	4	4	40	20	150	0	0	0	209	0	0	0
218	213	4963	24	12	6	1	1	4	3	40	20	131	0	208	0	150	0	0	0
219	193	19061	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
219	821	2059	24	12	6	2	1	6	2	71	80	0	0	0	0	0	0	0	0
219	220	1320	12	12	6	1	1	1	2	35	10	822	0	0	0	227	0	0	0
220	219	1320	12	12	6	1	1	1	2	35	10	0	0	821	0	0	0	0	0
220	822	950	12	10	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
220	222	950	12	10	6	1	1	4	3	40	20	0	0	0	0	0	0	0	0
220	227	528	12	12	6	1	1	4	3	40	20	226	0	0	0	228	0	0	0
221	228	2059	24	12	6	2	1	6	2	71	20	194	0	227	0	0	0	0	0
222	220	950	12	10	6	1	1	4	3	40	20	227	0	0	0	219	0	0	0
224	95	2112	24	12	6	2	1	6	2	71	80	80	0	0	0	0	0	0	0
224	121	2112	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
224	98	1848	24	12	6	2	1	1	2	50	20	106	0	0	0	0	0	0	0
225	96	2112	24	12	6	2	1	6	2	71	98	122	0	0	0	98	0	0	0
225	55	6864	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
225	88	1848	24	12	6	2	1	1	2	50	0	0	0	0	0	0	0	0	0

Middlesex/New London County Link Card File

226	141	12989	12	9	6	1	1	4	3	40	20	0	0	820	0	199	0	0	0
226	199	13728	12	12	6	1	1	4	3	45	20	197	0	141	0	198	0	0	0
226	227	211	12	11	6	1	1	4	3	40	20	220	0	228	0	0	0	0	0
227	226	211	12	11	6	1	1	4	3	40	20	141	0	0	0	199	0	0	0
227	228	1320	12	12	6	1	1	1	2	35	20	0	0	194	0	0	0	0	0
227	220	528	12	12	6	1	1	4	3	40	20	822	0	219	0	0	0	0	0
228	221	2059	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
228	194	19061	24	12	6	2	1	6	2	71	80	181	0	192	0	0	0	0	0
228	227	1320	12	12	6	1	1	1	2	35	10	Q	0	220	0	226	0	0	0
229	211	6072	36	12	6	2	1	6	3	70	20	134	0	0	0	208	0	0	0
230	65	7181	12	12	6	1	1	4	4	45	20	40	0	0	0	104	0	0	0
230	805	300	12	12	6	1	1	4	4	47	20	0	0	0	0	0	0	0	0
231	17	2500	24	12	6	1	1	5	4	25	100	0	0	0	0	0	0	851	0
232	67	2500	24	12	6	1	1	5	4	25	100	853	0	0	0	0	0	0	0
233	94	5000	24	12	6	1	1	4	2	25	100	855	0	0	0	0	0	0	0
234	856	5000	12	11	1	1	1	5	3	10	100	0	0	0	0	0	0	0	0
234	90	2500	22	11	6	1	1	4	1	30	20	109	0	110	0	94	0	0	0
234	115	2500	11	11	6	1	1	4	1	30	20	114	0	113	0	0	0	0	0
234	237	2500	11	11	6	1	1	4	2	25	0	0	0	0	0	0	0	0	0
235	171	7000	12	11	6	1	1	4	1	40	20	165	0	173	0	0	0	0	0
235	182	7000	12	11	6	1	1	4	1	40	20	183	0	186	0	0	0	0	0
235	859	5000	10	10	1	1	1	5	2	10	100	0	0	0	0	0	0	0	0
235	236	3000	11	11	6	1	1	4	2	30	0	0	0	0	0	0	0	0	0
236	235	3000	24	12	6	1	1	4	3	30	100	859	0	0	0	0	0	0	0
237	234	2500	24	12	6	1	1	4	2	25	100	856	0	0	0	0	0	0	0
238	113	500	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
238	239	7200	36	12	3	3	1	6	2	71	100	146	0	831	200	0	0	0	0
239	238	7200	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
239	146	500	48	12	6	3	1	6	2	71	100	149	0	0	0	147	0	0	0
239	831	3000	12	14	6	2	1	4	2	55	65	0	0	0	0	0	0	0	0
240	114	500	48	12	6	3	1	6	2	71	100	144	0	0	0	115	0	0	0
240	830	3000	12	14	6	2	1	4	2	55	68	0	0	0	0	0	0	0	0
240	241	7200	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
241	240	7200	36	12	3	3	1	6	2	71	100	114	0	830	200	0	0	0	0
241	137	500	36	12	6	3	1	6	2	71	0	0	0	0	0	0	0	0	0
242	68	500	24	12	6	4	1	6	2	71	0	0	0	0	0	0	0	0	0
242	243	4000	48	12	3	4	1	6	2	71	100	72	0	832	200	0	0	0	0
243	242	4000	48	12	3	4	1	6	2	71	0	0	0	0	0	0	0	0	0
243	72	500	36	12	6	2	1	6	2	71	100	70	0	66	0	0	0	0	0
243	832	3000	24	12	6	1	1	4	2	15	28	0	0	0	0	0	0	0	0
244	71	500	24	12	6	2	1	6	2	71	0	0	0	0	0	0	0	0	0
244	245	4000	48	12	3	4	1	6	2	71	100	44	0	833	200	0	0	0	0
245	244	4000	48	12	3	4	1	6	2	71	0	0	0	0	0	0	0	0	0
245	44	500	36	12	6	2	1	6	2	71	100	41	0	45	0	0	0	0	0
245	833	3000	24	12	6	1	1	4	2	15	28	0	0	0	0	0	0	0	0
99999																			

Middlesex/New London County Background Traffic (ADT)

MIDDLESEX and NEW LONDON Background Traffic

95	3	33200	1	4	70	143	30
1	3	6600	1	2	100		
80	3	1800	1	62	100		
148	3	1000	1	105	100		
81	3	2600	1	230	100		
9	3	10400	1	57	100		
154	3	2300	1	58	100		
156	3	1600	1	100	100		
85	3	5500	1	101	100		
163	3	2600	1	102	100		
395	3	14000	1	229	100		
32	3	6200	1	218	100		
12	3	4600	1	217	100		
2	3	3200	1	215	100		
164	3	2400	1	136	100		
201	3	1000	1	216	100		
49	3	1000	1	142	100		
95	3	22000	1	221	60	175	40
216	3	2000	1	222	100		
78	3	6000	1	189	100		
1	3	8000	1	185	100		
242	3	7000	1	242	100		
244	3	7000	1	244	100		
238	3	20000	1	238	100		
241	3	20000	1	241	100		

Middlesex/New London Surge Vulnerable Population File (Cat. 1&2)

Middlesex/New London Weak Storm Vulnerable Evacuees

6101	1	1302	1.9	9	70	7	20	3	10		
6102	1	2770	1.9	10	50	11	50				
6103	1	118	1.9	22	50	8	30	5	20		
6104	1	77	1.9	22	50	8	30	40	20		
6801	1	2932	1.8	13	15	231	70	24	15		
6701	1	1934	1.8	29	40	28	20	27	20	31	20
6702	1	5099	1.8	31	60	32	20	42	20		
660101	1	1046	1.7	232	70	66	15	69	15		
660102	1	1898	1.7	67	40	72	20	71	20	69	20
7161	1	457	2.0	79	80	77	20				
7162	1	3723	2.0	79	30	53	40	54	30		
6933	1	949	1.7	86	30	233	40	85	30		
6934	1	331	1.7	109	30	90	30	91	20	92	20
6935	1	1302	1.7	233	50	85	20	107	30		
6936	1	420	1.7	107	30	108	30	86	40		
6901	1	715	2.9	130	30	144	35	129	35		
6902	1	702	2.9	129	50	114	25	113	25		
6904	1	244	2.9	234	100						
6905	1	634	2.9	90	50	109	50				
6906	1	67	2.9	237	100						
6907	1	290	2.9	237	100						
6909	1	704	2.9	237	60	115	40				
7024	1	217	2.6	152	40	151	30	138	30		
7025	1	153	2.6	154	30	153	70				
7026	1	298	2.6	163	70	157	30				
7027	1	928	2.6	163	70	119	30				
7028	1	550	2.6	158	50	159	50				
7029	1	1759	2.6	169	30	168	30	166	20	167	20
7030	1	510	2.6	155	40	165	60				
7051	1	673	1.8	184	40	187	30	190	30		
7052	1	1163	1.8	183	40	186	30	236	30		
7053	1	2810	1.8	236	60	171	40				

Middlesex/New London Surge Vulnerable Population File (Cat. 3&4)

Middlesex/New London Strong Storm Vulnerable Evacuees

6101	1	1932	1.9	9	70	7	20	3	10		
6102	1	3399	1.9	10	50	11	50				
6103	1	167	1.9	22	50	8	30	5	20		
6104	1	91	1.9	22	50	8	30	40	20		
6801	1	3536	1.8	13	15	231	70	24	15		
6701	1	2641	1.8	29	40	28	20	27	20	31	20
6702	1	6023	1.8	31	60	32	20	42	20		
660101	1	1176	1.7	232	70	66	15	69	15		
660102	1	2517	1.7	67	40	72	20	71	20	69	20
7161	1	947	2.0	79	80	77	20				
7162	1	5764	2.0	79	30	53	40	54	30		
6933	1	1273	1.7	86	30	233	40	85	30		
6934	1	555	1.7	109	30	90	30	91	20	92	20
6935	1	1649	1.7	233	50	85	20	107	30		
6936	1	472	1.7	107	30	108	30	86	40		
6901	1	826	2.9	130	30	144	35	129	35		
6902	1	789	2.9	129	50	114	25	113	25		
6904	1	347	2.9	234	100						
6905	1	870	2.9	90	50	109	50				
6906	1	123	2.9	237	100						
6907	1	326	2.9	237	100						
6909	1	1141	2.9	237	60	115	40				
7024	1	400	2.6	152	40	151	30	138	30		
7025	1	237	2.6	154	30	153	70				
7026	1	431	2.6	163	70	157	30				
7027	1	1736	2.6	163	70	119	30				
7028	1	1238	2.6	158	50	159	50				
7029	1	2415	2.6	169	30	168	30	166	20	167	20
7030	1	574	2.6	155	40	165	60				
7051	1	993	1.8	184	40	187	30	190	30		
7052	1	1571	1.8	183	40	186	30	236	30		
7053	1	3174	1.8	236	60	171	40				

Middlesex/New London Non-surge Vulnerable & Mobile Home Population Files

Middlesex/New London Weak Storm Non-vulnerable Evac + Mobile Homes Evac

CLINTON 2	720	1.9	22	20	11	20	6	20	7	20	40	20
WESTBRK 2	360	1.8	18	20	21	20	23	20	20	20	24	20
OLD SAY 2	50	1.8	26	20	45	20	34	20	25	20	33	20
OL LYME 2	110	1.7	29	20	25	20	75	20	30	20	37	20
EA LYME 2	220	2.0	76	20	54	20	81	20	70	20	74	20
WATRFRD 2	440	1.7	94	20	86	20	85	20	122	20	121	20
NLONDON 2	500	2.9	108	20	112	20	111	20	130	20	110	20
GROTON 2	2310	2.6	152	20	160	20	161	20	162	20	170	20
STNGTON 2	660	1.8	173	20	171	20	180	20	179	20	191	20

Middlesex/New London Strong Storm Non-vulnerable Evac + Mobile Home Evac

CLINTON 2	940	1.9	22	20	11	20	6	20	7	20	40	20
WESTBRK 2	440	1.8	18	20	21	20	23	20	20	20	24	20
OLD SAY 2	110	1.8	26	20	45	20	34	20	25	20	33	20
OL LYME 2	250	1.7	29	20	25	20	75	20	30	20	37	20
EA LYME 2	520	2.0	76	20	54	20	81	20	70	20	74	20
WATRFRD 2	850	1.7	94	20	86	20	85	20	122	20	121	20
NLONDON 2	1220	2.9	108	20	112	20	111	20	130	20	110	20
GROTON 2	3420	2.6	152	20	160	20	161	20	162	20	170	20
STNGTON 2	990	1.8	173	20	171	20	180	20	179	20	191	20

Middlesex/New London Counties POPDIS Input Files (Cat. 3&4)

```
Middlesex/New London Strong Storm during Off-peak Traffic w/ Shelters, Rapid Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshe.out'
outprint='mspopshe.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.04 frc(3,2)=0.04 frc(3,3)=0.01 frc(3,4)=0.01
/
&timeint
intl(1)=360.0 intl(2)=480.0 intl(3)=520.0 intl(4)=600.0 intl(5)=720.0
int2(1)=0.0 int2(2)=180.0 int2(3)=420.0 int2(4)=540.0 int2(5)=720.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

```
Middlesex/New London Strong Storm Off-peak Traffic Moderate Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshe.out'
outprint='mspopshe.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.04 frc(3,2)=0.04 frc(3,3)=0.01 frc(3,4)=0.01
/
&timeint
intl(1)=180.0 intl(2)=360.0 intl(3)=420.0 intl(4)=540.0 intl(5)=720.0
int2(1)=0.0 int2(2)=180.0 int2(3)=420.0 int2(4)=540.0 int2(5)=720.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

```
Middlesex/New London Strong Storm Off-peak Traffic w/ Shelters, Slow Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshe.out'
outprint='mspopshe.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.04 frc(3,2)=0.04 frc(3,3)=0.01 frc(3,4)=0.01
/
&timeint
int1(1)=0.0 int1(2)=240.0 int1(3)=320.0 int1(4)=480.0 int1(5)=720.0
int2(1)=0.0 int2(2)=180.0 int2(3)=420.0 int2(4)=540.0 int2(5)=720.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

Middlesex/New London Counties POPDIS Input Files Mid-peak Traffic (Cat. 3&4)

```
Middlesex/New London Strong Storm, Mid-peak Traffic, Rapid Response
Mid-peak Traffic w/ Shelters, Rapid Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshm.out'
outprint='mspopshm.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.36 frc(3,2)=0.19 frc(3,3)=0.05 frc(3,4)=0.02
/
&timeint
intl(1)=510.0 intl(2)=630.0 intl(3)=670.0 intl(4)=750.0 intl(5)=870.0
int2(1)=0.0 int2(2)=330.0 int2(3)=570.0 int2(4)=690.0 int2(5)=870.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

```
Middlesex/New London Strong Storm during Mid-peak Traffic, Moderate Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshm.out'
outprint='mspopshm.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.36 frc(3,2)=0.19 frc(3,3)=0.05 frc(3,4)=0.02
/
&timeint
intl(1)=330.0 intl(2)=510.0 intl(3)=570.0 intl(4)=690.0 intl(5)=870.0
int2(1)=0.0 int2(2)=330.0 int2(3)=570.0 int2(4)=690.0 int2(5)=870.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

Middlesex/New London Counties POPDIS Input Files Mid-peak Traffic (Cat. 3&4)

```
Middlesex/New London Strong Storm, Mid-peak Traffic, Slow Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshm.out'
outprint='mspopshm.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.36 frc(3,2)=0.19 frc(3,3)=0.05 frc(3,4)=0.02
/
&timeint
intl(1)=150.0 intl(2)=390.0 intl(3)=470.0 intl(4)=630.0 intl(5)=870.0
int2(1)=0.0 int2(2)=330.0 int2(3)=570.0 int2(4)=690.0 int2(5)=870.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

Middlesex/New London Counties POPDIS Input Files Peak Traffic (Cat. 3&4)

```
Middlesex/New London Strong Storm Peak Traffic, Rapid Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshr.out'
outprint='mspopshr.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.31 frc(3,3)=0.22 frc(3,4)=0.18
/
&timeint
intl(1)=690.0 intl(2)=810.0 intl(3)=850.0 intl(4)=930.0 intl(5)=1050.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=870.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

```
Middlesex/New London Strong Storm during Peak Traffic, Moderate Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshr.out'
outprint='mspopshr.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.31 frc(3,3)=0.22 frc(3,4)=0.18
/
&timeint
intl(1)=510.0 intl(2)=690.0 intl(3)=750.0 intl(4)=870.0 intl(5)=1050.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=870.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```

Middlesex/New London Counties POPDIS Input Files Peak Traffic (Cat. 3&4)

```
Middlesex/New London Strong Storm Peak Traffic, Slow Response
&files
filename(1)='mspoplsh.prn'
filename(2)='mnsnonv.prn'
filename(3)='mnback.prn'
outfile='mspopshr.out'
outprint='mspopshr.prt'
/
&poptype
atype(1)='vul evacs'
atype(2)='nonvul+mob'
atype(3)='background'
/
&fraction
frc(1,1)=0.15 frc(1,2)=0.10 frc(1,3)=0.50 frc(1,4)=0.25
frc(2,1)=0.15 frc(2,2)=0.10 frc(2,3)=0.50 frc(2,4)=0.25
frc(3,1)=0.24 frc(3,2)=0.31 frc(3,3)=0.22 frc(3,4)=0.18
/
&timeint
int1(1)=330.0 int1(2)=570.0 int1(3)=650.0 int1(4)=810.0 int1(5)=1050.0
int2(1)=0.0 int2(2)=180.0 int2(3)=540.0 int2(4)=690.0 int2(5)=870.0
/
4,143,2,62,105,230,57,58,100,101,102,229,218,217,215,136,216,142,221,175,222,
189,185,242,244,238,241
```