

THE GRIM REAPER'S NEW CLOTHES

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“Why is the season *always* liberal?”

The question arose after dinner while we were seated around the table at hunting camp, discussing in our rambling way the issues that are of keen interest to all waterfowlers – the fall flight, the weather, the gunning regulations and so on. It came as the 2006-07 duck season neared its end, with all of us at the table agreeing the mallard fall flight had been significantly smaller than anticipated, especially considering the springtime abundance of potholes on the northern prairie breeding grounds that should have produced bountiful numbers of juveniles winging southward the length of the continent.

The question struck at the heart of Adaptive Harvest Management (AHM), the regulatory protocol that sets our season lengths and bag limits. AHM's proponents argue it protects our flocks, but 12 consecutive years of liberal regulations have raised substantive doubt.

We are forced to ask: Is Adaptive Harvest deliberately skewed to insure long seasons and high bag limits? Is it responsible for the increasingly thin fall flights, relative to habitat conditions, that we have experienced in recent years?

To answer these questions, we must first examine the Adaptive Harvest matrix, the final arbiter of season length and bag limit. We will use the 2006-07 matrix as our example.

As you can see in the following matrix, Adaptive Harvest offers four regulatory alternatives, based on the mallard breeding population¹ and number of Canadian potholes – a **Closed** season, a **Restrictive** season (the fewest number of hunting days and smallest bag limits), a **Moderate** season (increased number of days and ducks in the bag), and a **Liberal** season (greatest number of hunting days and largest bag limits).

¹ The total reflects the number of mallards counted in the traditional North American breeding-ground survey, plus the states of Wisconsin, Minnesota and Michigan.

Canadian Potholes

	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
Mallards										
<=5.25	C	C	C	C	C	C	C	C	C	C
5.50-6.25	R	R	R	R	R	R	R	R	R	R
6.50	R	R	R	R	R	R	R	R	M	M
6.75	R	R	R	R	R	R	R	M	M	L
7.00	R	R	R	R	M	M	M	L	L	L
7.25	R	R	R	M	M	L	L	L	L	L
7.50	R	R	M	M	L	L	L	L	L	L
7.75	M	L	L	L	L	L	L	L	L	L
8.00	M	L	L	L	L	L	L	L	L	L
>=8.25	L	L	L	L	L	L	L	L	L	L

Figure 1. Adaptive Harvest constructs a matrix each year to set the gunning regulations, similar to the one above for the 2006-07 season that allows for a closed, restrictive, moderate or liberal season. To determine AHM’s choice, find in the left column the appropriate number of breeding mallards and follow the total across to its intersection with the number of Canadian potholes. For the 2006-07 season, surveys found 7.86 million mallards and 4.45 million potholes, a liberal option.

Source: USFWS

A casual glance at four options scattered across the various cells would appear to rebut any presumption that Adaptive Harvest is skewed toward the liberal framework. Of the 100 cells in the matrix, 57 call for a closed, restrictive or moderate season, while only 43 command liberal. Presumably, all four options have an equal chance of selection. But history suggests otherwise. Since Adaptive Harvest Management began in 1995, we have had 12 consecutive years of liberal regulations. The closed, restrictive and moderate options have never been adopted. The minority liberal option has emerged as the sole, perennial choice.

To understand why this has occurred we must look at historic Canadian pothole counts. The Adaptive Harvest matrix shown above tells us *the lowest number of potholes required for a liberal season is 1.5 million*. We can compare this total to the number of potholes counted each year since 1961, the first year potholes were included in the U.S. Fish and Wildlife Service breeding-ground survey.

CANADIAN POTHOLES

1961	1.977	1971	4.053	1981	1.433	1991	2.494	2001	2.747
1962	2.369	1972	4.009	1982	3.185	1992	2.784	2002	1.439
1963	2.482	1973	2.950	1983	3.906	1993	2.261	2003	3.522
1964	3.371	1974	6.390	1984	2.473	1994	3.769	2004	2.513
1965	4.379	1975	5.320	1985	4.283	1995	3.892	2005	3.920
1966	4.554	1976	4.599	1986	4.025	1996	5.003	2006	4.445
1967	4.691	1977	2.278	1987	2.532	1997	5.061		
1968	1.986	1978	3.622	1988	2.110	1998	2.522		
1969	3.548	1979	4.859	1989	1.693	1999	3.862		
1970	4.875	1980	2.141	1990	2.817	2000	2.422		

Table 1. Canadian pothole counts from 1961-2006 have ranged from a low of 1.4 million to a high of 6.4 million. All totals in the above table are in millions.

Source: USFWS

As you can see, the minimum number of potholes for a liberal season fell below the 1.5 million threshold only *twice in the past 46 years. Potholes equaled or exceeded the minimum threshold 96 percent of the time.* This tells us that potholes – the standard measure of breeding habitat conditions – have virtually no impact on Adaptive Harvest’s regulatory selection. This is contrary to past practice when season lengths and bag limits were sharply curtailed during years of low water to protect our adult breeding stocks from over-shooting, a matter viewed as necessary because of depressed juvenile production.

Another problem involves numbers of breeding mallards, which have been surveyed by the U.S. Fish and Wildlife Service since 1955 and are listed in the following chart.² All numbers are in millions.

MALLARD BREEDING POPULATION

1955	9.764	1966	7.719	1977	8.384	1988	7.356	1999	11.864
1956	11.440	1967	8.497	1978	8.412	1989	6.632	2000	10.705
1957	10.284	1968	8.076	1979	8.870	1990	6.439	2001	8.767
1958	12.221	1969	8.519	1980	8.693	1991	6.432	2002	8.568
1959	10.001	1970	10.973	1981	7.397	1992	6.961	2003	8.785
1960	8.314	1971	10.403	1982	7.395	1993	6.642	2004	8.358
1961	8.317	1972	10.253	1983	7.443	1994	8.130	2005	7.548
1962	6.523	1973	9.066	1984	6.402	1995	9.390	2006	7.865
1963	7.736	1974	7.867	1985	5.948	1996	8.966		
1964	7.051	1975	8.714	1986	7.111	1997	11.017		
1965	6.119	1976	8.921	1987	6.777	1998	10.762		

Table 2. The 1955-2006 North American mallard breeding population has ranged from a low of 5.9 million to 12.2 million. All estimates in the above table are in millions and adjusted upward to include estimates for the states of Minnesota, Wisconsin and Michigan. Source: USFWS

The AHM matrix sets *the minimum mallard breeding population for a liberal season at 6.75 million.* As you can see from the above data, the mallard population has fallen below this threshold only eight times in the past 52 years. This tells us that we have *an 85 percent chance the mallard breeding population will equal or exceeded the minimum number required for a liberal season.*

With a 96 percent chance the number of potholes will equal or exceed the liberal minimum, and an 85 percent chance the number of breeding mallards will equal or exceed the liberal minimum, can we realistically expect a proportionate number of moderate or restrictive seasons?

We need to make one further calculation. Using the 2006-07 matrix as our standard, we can calculate from the historical data the regulatory choice for all surveyed

² The traditional North American survey breeding ground totals have been adjusted upwards by 987,000 for the years 1955-91. This represents the average mallard breeding population for Minnesota, Wisconsin and Michigan for the years 1992-2006. No comparable population data exists prior to 1992 for the three states.

pothole-population combinations since 1961. The result is startling. Adaptive Harvest would have picked liberal in 28 of the 46 years – 61 percent of the time.

Moreover, if we assume each season's regulatory package is independent of each previous year, we can calculate the chance of 12 consecutive years of liberal frameworks. The odds are 300-to-one against it.³

This strongly argues Adaptive Harvest is overwhelmingly biased in favor of a liberal framework, resulting in long seasons, large bag limits and high annual kills. The non-liberal options are largely fig leaves designed to camouflage AHM's avowed goal to maximize the kill and shoot down the breeding population. It is why today we are seeing thinner and thinner mallard flights, relative to habitat conditions, in the skies over our blinds. It means we will see fewer ducks in coming years.

All of this tells us Adaptive Harvest is more than junk science. It is a statistical Grim Reaper. It begets an avian malevolence unparalleled in waterfowl-conservation history. It should be declared scientific rubbish and tossed on the trash heap. The sooner this occurs, the sooner ducks can begin their recovery.

³ Population biologists might quibble over the odds on grounds the number of breeding mallards (or potholes) in Year t is not truly independent of the number counted in Year t-1, but this would be a minor disputation. It would not negate the emergent, overall truth of our analysis.

If we take care of the ducks, the ducks will take care of us.
