Wood duck use of Nesting Boxes along Rock Island Reservoir in 2020

ANNUAL REPORT

Photo by Matt Phillips

Kelly A. Cordell and Von R. Pope

Public Utility District No. 1 of Chelan County
P.O. Box 1231
Wenatchee, WA 98807-1231

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Introduction

In January 1989, the Federal Energy Regulatory Commission issued a new license for the Rock Island Hydroelectric Project. Article 407 of that license required the Public Utility District No. 1 of Chelan County (Chelan PUD) to monitor the use of wood duck nest boxes along Rock Island Reservoir (Reservoir) for two years. In that two-year study (Fielder 1991), Chelan PUD recommended actions for future wood duck management along the Reservoir. Those actions included maintaining a minimum of 60 nest boxes annually, continuing to monitor wood duck nesting efforts in the boxes, and reporting annual nesting results to the U.S. Fish and Wildlife Service (USFWS) and Washington Department of Fish and Wildlife (WDFW).

Chelan PUD provides, maintains, and monitors wood duck (*Aix sponsa*) nest boxes along the Reservoir located on the Columbia River near Wenatchee, Washington. This was the 38th year of the wood duck nest monitoring program that Chelan PUD began in 1983. This annual report summarizes wood duck nesting along the Reservoir during the 2020 nesting season. It also compares wood duck nesting in 2020 to previous years.

Study Area

Present

The project area is located in north-central Washington near the cities of Wenatchee and East Wenatchee. Wood duck nest boxes have been erected along shores of the Reservoir on the Columbia River between river miles 454 and 471 and at the confluence of the Columbia and Wenatchee Rivers. These areas include the optimal wood duck nesting and brooding habitat along the Reservoir, based upon a mature tree overstory and shallow backwater areas with abundant shoreline vegetation. Chelan and Douglas counties border the west and east shores of the Reservoir, respectively. Wood ducks are sparse breeders in Washington State (Bellrose and Holm 1994). In fact, Bellrose (1976) separated breeding and non-breeding wood duck areas in central Washington along the Columbia River, through the middle of our nest box area.

Steep cobble or dirt banks comprise much of the Reservoir shoreline. At the mouth of the Wenatchee River several backwater channels, man-made ponds, and interconnecting channels provide higher quality habitat than along much of the main Reservoir. Areas along the Reservoir where wood ducks are generally seen are dominated by black cottonwood (*Populus balsamifera* ssp*. trichocarpa*), maple (*Acer* spp.), willow (*Salix* spp.), and mulberry (*Moras alba*). In addition to the overstory species, emergent and overhanging vegetation line the quiet, shallow backwater areas that are suitable for duck brooding.

Shrub steppe vegetation, fruit orchards, residential, recreation, and industrial areas occupy areas up-slope from the riparian edge of the river. Shrub steppe habitat of central Washington is dominated by big sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus* spp.), and bluebunch wheatgrass (*Agropyron spicatum*).

Historically

Historically, few wood ducks probably nested along the Columbia River in central Washington. Aerial photos of the Columbia River, taken in 1930 (prior to construction of hydroelectric dams), indicated minimal riparian vegetation (in the form of a deciduous overstory) along the mid-Columbia. Runoff from snow melt caused large seasonal fluctuations in the river level. The high water levels seemed to have scoured away most shoreline vegetation within the high water zone. As river flow decreased after the spring run-offs, the river level receded, revealing a wide barren cobble zone between the summer river level and the native shrub-steppe vegetation above the high water mark. Fast-flowing water with ranging seasonal variations made it impossible for vegetation to

establish below the high water line during spring runoff. Lush riparian vegetation (e.g., cottonwoods, willows, maples) did not persist along the high water line because a lack of moisture during the summer. Therefore, the Columbia River shoreline prior to the Reservoir did not historically provide wood duck nesting and brooding habitat.

Hydroelectric and water storage dams built on the Columbia River between 1930 and 1970 controlled river flow and reduced seasonal river fluctuations. Relatively consistent reservoir levels allowed woody riparian vegetation to establish at many areas along the river. As riparian vegetation became established, habitat for wood ducks improved in some areas compared to the habitat that existed prior to construction of the dams. The mid-Columbia River is now capable of supporting, and probably does support, a higher wood duck nesting population now than it did historically. Rock Island Dam was the first dam on the Columbia River and the reservoir behind it supports older and more developed woody riparian habitat than most other segments of the mid-Columbia.

Methods

Nest Box Maintenance

Between 1983 and 1988, up to 25 boxes were monitored. Since 1989, Chelan PUD has maintained a minimum of 60 wood duck boxes along the Reservoir as required under Article 407 of the Rock Island Operating License. Wood duck nest boxes placed along the Reservoir were constructed and installed following the guidelines suggested by Fielder (2000). Nest boxes were installed either on large diameter trees or on posts with predator guards. The nest boxes are placed near, or over, backwater habitats. In late winter of each year, nest boxes are inspected, repaired or replaced as necessary, and prepared for the spring wood duck nesting season. During 2013, rotting wood on some wooden posts created a safety hazard. To address the safety concern, all wooden posts (n = 25) in the Horan Natural Area were replaced with new 4" pressure treated posts following conclusion of the nesting season in 2013. Much of the habitat where wood duck boxes have been placed over the last 38 years has changed from early seral to maturing riparian. In recent years, wood ducks have been more frequently observed further downstream along the Reservoir, where backwater habitats have less density of overstory trees.

During late winter of 2019 a bald eagle established a nest in the Horan Natural Area, near some of most productive, historically, wood duck nesting habitat. In coordination with Washington State Parks and the U.S. Fish and Wildlife Service, monitoring and maintenance activities for the Horan Natural Area Trail and wood duck nest boxes within a 600 foot buffer were curtailed during the nesting season. As a result, 12 nest boxes within the bald eagle nest buffer within the Horan Natural Area were not monitored in 2019. To compensate for the boxes that were not monitored within the bald eagle nest buffer in 2019, 25 new boxes were installed during spring 2019 in two locations: the eastern shores of the Wenatchee Confluence islands and along the lower reaches of the Reservoir near Rock Island Dam. In 2020, the bald eagles returned to same nest in the Horan Natural Area and the same eagle nest buffers (600 feet) guidelines were implemented.

To limit predation issues for nesting wood ducks, elliptical entrance holes 3" high and 4" wide prevent most raccoons (*Procyon lotor*) from entering nest boxes (Bellrose and Holm 1994). Although entrance openings to our nest boxes are no larger than 4" x 3", the edges to several of the entrance holes had been rounded to allow easier access for the hens. These rounded edges may allow raccoons to squeeze into the boxes. To reduce predation by raccoons, extensions (face plates) are fastened over the existing openings on some nest boxes. The face plates were cut from 5/8" plywood and have 4" x 3" elliptical openings which do not have rounded edges. This 5/8" extension made the entrance holes a longer, deeper, and tighter fit that might further reduce entry by raccoons (Fielder 2000). Sixty seven nest boxes are outfitted with a face plate device. Two of those boxes were protected with the addition of a second face plate to make the box protected by "double face plates." These "double face plates" consist of two

separate face plates placed over the box entrance to provide an even deeper tunnel opening to further reduce raccoon problems.

Other predator deterrents include wrapping wide bands of sheet metal around the trunks of trees that have nest boxes or adding PVC sleeves to posts supporting the nest boxes. Originally, about 15 boxes located on trees were protected by wrapping the tree trunks with bands of sheet metal. Over the years, the effectiveness of these sheets has been limited as trees have been felled by beaver or the sheet metal bands became unattached. Additionally, large tree diameters and inter-connecting limbs make it difficult to completely exclude predator access to most trees. As of 2020, the metal wrap has been phased out in preference of other exclusion devices such as face plates or PVC wrap on posts.

All support posts (n = 31) for nest boxes are guarded by a minimum of a 4-foot length of PVC pipe encasing the support posts. This casing prevents predators from gaining access to the box by climbing the posts. The PVC casing makes the pole too smooth and slippery for animals (primarily raccoons) to grip. In 2020, 25 boxes mounted on posts with sleeves also had a face plate device. Seventy-three of the 81 wood duck nest boxes have predator deterrents (face plates or PVC) in addition to the standard 4" x 3" elliptical entrance hole.

Nest Box Monitoring

In 2020, wood duck nest boxes were surveyed 3 times during the nesting season, depending on the nesting activity in the boxes (incubating hens were disturbed as little as possible). During each survey, we determined the number of nests initiated by wood ducks and number of eggs laid per nest. At the end of monitoring season (the fate of each nest (including causes of predation and other unsuccessful nesting attempts) was determined. We also removed and destroyed any starling (*Sturnus vulgarus*) nests, eggs, or young found in the nest boxes during surveys. Other native species that nested in the wood duck boxes were allowed to occupy the wood duck nest boxes.

Nest boxes were classified as initiated by wood ducks if one or more wood duck eggs were deposited in the box. Successful nests were classified as nests from which at least one egg hatched and at least one duckling left the nest box (Mayfield 1975). The average clutch sizes (# eggs laid) and fledge rates (# ducklings that left nest box) are calculated only from successful, non-dump nests (dump nests and unsuccessful nests were excluded when calculating average clutch size/fledge rate). Nest initiation dates were determined using an egg laying rate of 1 egg per day (Leopold 1951). Nest initiation dates were not determined for dump nests.

Beginning in 1999, nests with clutches exceeding 12 eggs were regarded as dump nests (nests in which more than one hen laid eggs). This dump nest criteria is based upon agreement with work conducted by Semel and Sherman (1992). Prior to 1999, we had used the criteria established by Morse and Wight (1969) that considered wood duck nests to be dump nests if they contained 16 or more eggs. The change in dump nest criteria means that earlier survey reports (1983 - 1998) underestimated the amount of dump nesting that occurred and overestimated average clutch sizes. Clutch size and fledge rates specific to dump nests are calculated from only successful dump nests (nests containing 13 or more eggs).

Results and Discussion

Wood duck occupancy and production

Chelan PUD began the 2020 nesting season with 81 wood duck nest boxes along the Reservoir. During 2020, early season preparations (repairs and adding wood shavings) typically done in late-March or April did not occur due to the COVID-19 pandemic. Nest boxes were first checked much later than typical, on 29 May. During this first survey, 4 boxes were found to be damaged due to fallen trees or eroded banks and unavailable for wood ducks. In addition, 12 traditional boxes were within the bald eagle nest buffer in the Horan Natural Area and were not monitored.

In total, wood ducks laid 119 eggs in 10 nest boxes from the 65 nest boxes (15% occupancy) that were available and monitored through the season in 2020 (Table 1). Three of the 10 nests (30%) were successful, producing 36 ducklings; unsuccessful nests are discussed below. The average clutch size (calculated from successful, non-dump nests) was 8.0 eggs per successful nest and average fledge size was 7.0 ducklings per nest. Six dump nests (nests with 13 or more eggs) were observed during 2020. Numbers of ducklings fledging per dump nest are generally higher than those of non-dump nests. During the last decade, an average of 9.2 ducklings fledged per dump nest compared to an average of 7.9 ducklings per non-dump nest. In 2020, a total of 29 ducklings fledged from 2 successful dump nests.

Dump nesting has generally been beneficial to our nesting population; adding to the total number of eggs laid, the proportion of those eggs that fledge are somewhat similar to non-dump nests, and a greater number of ducklings overall are produced. Detrimental effects of dump nesting often become evident in areas where nest programs build up large breeding populations, where large numbers of eggs are laid, but proportionally fewer young are produced (Bellrose and Holm 1994). Dump nesting could be diminished if nest boxes were moved so they would be less visible to wood ducks (Semel and Sherman 1995). However, a narrow riparian corridor and low availability of shallow backwater areas in our study area restrict our placement of nest boxes.

Due to the COVID-19 pandemic monitoring was delayed until late May when workplace distancing practices and PPE precautions were approved. Wood duck nest initiation occurred much later than typical in 2020. The first nests initiated was calculated to be on or around 11 May. The earliest wood duck nest initiated since we began our nest box program in 1983 was on 23 March 1998. The latest wood duck nest in 2020 hatched in early July. It is not unusual to find 1 - 2 nests initiated late in the season; hatching in late June or early July. However, 5 of the 10 nests initiated during 2020 were still being incubated by hens in early June. The low water conditions (in the level ditching in the Horan Natural Area) during the typical nest initiation period could have influenced the later nesting of wood ducks during 2020.

River flows in the Reservoir were much lower in the spring of 2020 during the typical wood duck nest initiation season (1 March to 1 May) relative to average flows experienced during the previous decade. Flows during the March – May 2020 timeframe averaged 85.6 thousand cubic feet per second (kcfs) compared to the average of 126.7 kcfs experienced during the same timeframe for 2009-2019 (DART 2020). Peak flows during 2020 occurred later than typical, occurring in June through July rather than the typical April – June runoff period. From 2009-2019 peak flows often exceed 220 kcfs and have occurred annually from 2009 – 2018 with the exception of 2015 and 2019. Peak outflow from Rock Island Dam of 243.2 kcfs occurred on 4 June. No nest boxes were inundated during 2020 during peak flows. The average peak daily outflow from Rock Island Dam during June 2020 was 207.2 kcfs.

Duckling production along the Reservoir was at its highest from 1993 - 2000 (Table 1). A low number of initiated nests, low clutch size, and a high predation rate combined to result in a major reduction in duckling production in 2001 and 2002. However, the number of ducklings produced per box (0.6) during 2020 was well below

the long-term average of 1.7 ducklings per box and equals the second lowest production in the history of the program. The second-lowest number (0.6) also occurred during a recent drought year (2015) and was slightly higher (0.7) during the 2018 season (Table 1). A number of nests failed for a variety of reasons, contributing to the poor production numbers. Additionally, 12 of the boxes in the highest-productivity area were off-limits to monitoring in 2020 due to proximity of a nesting bald eagle. The loss of data from these 12 boxes in a consistently high producing area and the large quantity of available boxes may be artificially suppressing duckling production numbers.

Duckling production seemed to increase in 2003 and 2004 but decreased again during the 2005 - 2011 and 2018 to current nesting seasons. Prior to the 2008 nesting season, new boxes were placed along the Reservoir and historically unproductive boxes were moved to new locations. However, moving unproductive boxes to new locations did not have an immediate effect on nest occupancy or success from 2008 - 2012. During 2015, historic drought conditions occurred and affected availability of water in the shallow back channels of the South Confluence. The Columbia River was less affected, but was running well below average spring flows for the duration of nesting season. Similar low flows were also experienced during 2020. Many of the nest boxes were no longer isolated by water, allowing predators such as raccoons, easy access to disturb the hens. A cooler than normal spring may have extended the nesting season, as many of the hens did not initiate nests until late May.

Starlings attempted nests in 7 of the wood duck boxes during 2020, which is average. Generally, destruction of starling nests in early to mid-May seems to disrupt their use of the nest boxes. Continued vigilance to manage starling nest starts is beneficial for use of the nest boxes by wood ducks.

Low occupancy and success for wood duck nest boxes in 2020 could have been affected by the relatively high number of new wood duck boxes erected in 2019 and the reduction of wood duck nest boxes monitored in the Horan Natural Area. Even with the reduction of wood duck nest boxes monitored in the Horan Natural Area, this area had the highest occupancy rate (70%) of all nests and accounted for 81% (n = 29) of ducklings produced. The Wenatchee Confluence State Park Horan Nature Area historically has the highest wood duck production along the Reservoir. The Nature Area surrounds the confluence of the Wenatchee and Columbia rivers; with the Wenatchee River bisecting the park. A maze of wetlands, channels, and islands were created in the southern portion of the Nature Area, known as the South Confluence. The northern section of the park also contains channels and ponds. The man-made waterways of the South Confluence of the park are shallow and provide an early and abundant protein source of aquatic invertebrates in the quiet backwater brooding habitat. Generally, boxes in this area receive a high percentage of use by wood ducks and account for many of the ducklings produced. Our inability to prep the nest boxes in late- March or early April due to the COVID-19 pandemic may have also negatively affected wood duck nest box occupancy.

Unsuccessful nests

Nest abandonment and predation resulted in a combined total of 7 nest failures which represented 70% of eggs laid during 2020. Six nests were abandoned for unknown reasons following initiation of the clutch. One additional nest exhibited signs of the hen being predated at the box by a raccoon. Generally, the raccoons kill the hen and feed on the carcass, scattering feathers on nearby tree limbs and trunks and in or near the nest box. Blood splotches are often visible on the nest box lid and sometimes on the sides and near the box opening. If the raccoon can enter the box, it breaks and feeds on the eggs. Typically, mink decapitate the hen, do not feed on the carcass (but may return in following days and feed on the carcass), and do not break or bother the eggs. Generally, few feathers are scattered and most of the carcass appears untouched.

The number of abandoned nests for the nest box program in 2020 (n = 6) was higher than the long-term average of 3.5. Nest abandonments occurred during 87% of all nesting seasons from 1984 to present. Nests might be abandoned for a number of reasons. Faulty nest boxes, disturbance, harassment, or predation could cause a hen

to abandon a nest. Fresh scratches and raccoon hair were apparent at all boxes where abandonments were discovered during 2020. Another potential cause for nest abandonment is intraspecific competition, in which altercations between females occur at nest boxes. Bellrose and Holm (1994) found that as nest density increased, the number of injured females and deserted nests increased as a result of increasing intraspecific strife. Wood duck hens return to the same nest boxes year after year. Often, a yearling female was found to be the intruder, and the surviving female an adult.

Even as suitable nest sites are available it is thought that the greater the concentration of breeders, the more likely that certain females will follow another female to a nest site for the purpose of depositing an egg, resulting in higher numbers of dump nests (Bellrose and Holm 1994). However, this does not appear to be the case along the Reservoir.

Predation on incubating wood duck hens by raccoons and mink has been a problem along the Reservoir during many recent years compared to the earlier years of the nest box program. Between 1983 and 1995, only 2 wood duck hens were killed by mink in our nest boxes. Mink and raccoons have killed at least one incubating wood duck hen in a nest box during 91% of the nesting seasons since 1995. Predation events attributed to mink peaked during 1996 - 1998 seasons, where 3, 3, and 4 wood duck hens were killed, respectively.

No wood duck nests were destroyed by Northern flickers (*Colaptes auratus*) during 2020. Flickers will peck holes in the eggs to destroy them, and may remove destroyed eggs and shell fragments. No wood duck nests were abandoned as a result of starlings building nests on top of wood duck eggs. In previous years, starling nest attempts on top of wood duck eggs have led to failed wood duck nests. With later nest checks during 2020 occurring due to the COVID-19 pandemic it was expected but not encountered, fortunately.

Columbia River flows were lower than average during the height of the wood duck nest initiation season, and then increased to higher than average for the month of June during 2020. Similarly, during both 2011 and 2012, reservoir elevations were higher than average during late June, although not as high as elevations experienced during the 1997 season. After unusually high water levels during 1997 flooded 25% of the wood duck nests, the affected boxes were moved to higher elevations. Water levels have since remained below the 1997 maximum flow, but some flooding of nest boxes has been experienced during the recent high flows during 2011, 2012, and 2018, especially in the Confluence area.

Other species use of nest boxes

Over the past few years, we had seen an increase in the number of boxes occupied by bees. Prior to the beginning of the 2020 season, only one wood duck box was occupied by honeybees. No additional boxes were overtaken by bees during 2020. However, one nest box was found to have a rat (*Rattus* sp.) inside of it.

During 2020, we removed starling eggs and or nesting material from 7 nest boxes. Nest box programs in which boxes are not regularly checked to remove starling nests may produce many starlings rather than wood ducks or other native species. There has been a severe reduction in starling nest attempts in our boxes since we began removing all starling nests, eggs, and young encountered in our boxes during each survey.

Northern flickers occupied a total of 3 wood duck nest boxes during 2020. Eastern gray squirrels (*Sciurus carolinensis*) nested in 1 additional nest box along the Douglas County shoreline. The introduced squirrels are becoming more common along the Reservoir and are likely to exclude wood ducks from nesting in the boxes. The boxes in these areas may benefit from having the entry holes covered during the off-season, and opened during the beginning of the wood duck nesting period in order to prevent or reduce use by the squirrels. Chelan PUD may experiment with methods to reduce Eastern gray squirrel use of wood duck nest boxes.

Each year tree swallows attempt to nest in our wood duck nest boxes. Tree swallows (*Tachycineta bicolor*) generally initiate nests in late May and early June, near the end of the wood duck nest initiation period. It is doubtful if the tiny tree swallow nests would preclude a wood duck from nesting in a box.

Nest box program summary

The wood duck nest box program along the Reservoir has produced an average of 114 ducklings annually. This year, the program produced 36 ducklings. The peak production of 258 ducklings from the Chelan PUD nest box program occurred in 2000. Ten nests were initiated this season with 30% successfully fledging young. This nest success rate is lower than the 38-year average (63%). Average clutch sizes were relatively low this year (8.0 eggs/successful nest) as they had during the past few seasons. One hundred nineteen wood duck eggs were laid in our boxes this year, lower than the 38-year average of 205 eggs (Table 1).

Evidence of raccoon and mink activity near our nest boxes (tracks in the mud along the shorelines), was relatively high again this year compared to early in the nest box program's history. During 2000, Washington state voters passed a law that restricted conventional trapping with leg hold and body gripping traps. The absence of trapping will likely lead to further increases in raccoons and mink along the river and predation problems similar to those we have experienced from 2001 through this season. The spring of our highest wood duck production (258 ducklings) followed a winter during which a local trapper harvested a good number of raccoon and mink within or near our nest box project area.

Most of our nest boxes (90%) have 1 or more of 3 different types of predator deterrents. Nest boxes mounted on poles have PVC pipe sleeves to deter predators from climbing up to the nest box. Face plates help to exclude predators from the boxes by maintaining the 4" x 3" entrance hole. Face plates also reduce the effective reach of a predator trying to access the nest box. Predator deterrents may not be enough to adequately prevent growing populations of mink and raccoons from being serious wood duck nest predators because of their persistent nature.

Checking nest boxes regularly during the nesting season greatly enhances a nest box program's production (Utsey and Hepp, 1997). We reduced starling competition for nest boxes by frequently checking the boxes and removing starling nests so that the boxes were available for wood duck use. The frequent nest box checks also allow us to better identify predation, nesting problems, and to monitor success.

Conclusion

In 2020, Chelan PUD had deployed 81 nest boxes, 65 of which were maintained and monitored through the nesting season. Duckling production (n = 36) during the 2020 nesting season was much lower than the 38-year average (n = 114) for the Reservoir. The combination of relatively low Columbia River flows March – May followed by higher than average flows for the month of June, a reduction of high-production wood duck nest boxes monitored in the Horan Natural Area due the nesting bald eagle, and a high number new of boxes installed likely contributed to the low duckling numbers per nest box.

High levels of predation by raccoons and mink during recent years appear to be taking a toll on nesting hens, reducing nest success and therefore, the overall number of ducklings hatched. In northern latitudes, many hen wood ducks may not nest until their second year. Yearling hens of many duck species are known to lay smaller clutches than adult hens (Mendall 1958, Dane 1965, Coulter and Miller 1968, Morse et. al. 1969, Krapu and Doty 1979). Predation on older hens may be reducing the reproductive potential of the nesting wood duck population in the

Wenatchee area. As that reproductive potential is reduced, fewer young hens are recruited into the nesting population in future years.

The number of nests initiated in the Horan Nature Area during 2020 (n = 6) was close to both the 5-year average of 5.8 nests and the long-term average of 7.7 nests, despite the continued reduction of water in the wetlands. From 2008 - 2010, Chelan PUD Wildlife staff noticed a decrease in the water elevation in the ponds at the South Confluence Nature Area. This became very apparent in 2010, when canoeing the channels within the wetland became much more difficult due to lower water levels. Between 2008 and 2014, surface water conveyance to the wetland ponds in the Horan had diminished completely. Previous irrigation returns were removed and storm water runoff has been diverted or no longer flows directly into the ponds. Currently, the only source of water for the wetland ponds is ground water from the Wenatchee and/or Columbia rivers or high flow events that cause flooding. Chelan PUD continues to work internally and with local partners like the City of Wenatchee and the Audubon Society to return surface water flow to the wetland ponds in the Horan Natural Area.

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Table 1. Wood ducks produced from nest boxes along Rock Island Reservoir, Columbia River, Washington, 1983 - 2020.

Year	No. boxes available	No. wood duck nests	% of boxes used by WD	No. of successful WD nests	% of successful WD nests	No. of WD eggs laid	No. of WD ducklings produced	% of WD eggs hatched	No. of WD ducklings per box
1983	20	12	60%	8	67%	112	63	56%	3.2
1984	19	12	63%	7	58%	133	83	62%	4.4
1985	25	8	32%	6	75%	66	52	79%	2.1
1986	25	11	44%	8	73%	101	68	67%	2.7
1987	25	8	32%	7	88%	83	70	84%	2.8
1988	25	9	36%	3	33%	64	26	41%	1.0
1989	24	5	21%	4	80%	45	38	84%	1.6
1990	73	8	11%	7	88%	87	59	68%	0.8
1991	63	25	40%	11	44%	230	108	47%	1.7
1992	73	23	32%	21	91%	231	195	84%	2.7
1993	72	36	50%	23	64%	372	239	64%	3.3
1994	75	30	40%	26	87%	339	220	65%	2.9
1995	82	36	44%	25	69%	341	207	61%	2.5
1996	88	45	51%	22	49%	453	185	41%	2.1
1997	90	52	58%	13	25%	533	106	20%	1.2
1998	92	34	37%	22	65%	356	217	61%	2.4
1999	98	33	34%	22	67%	351	204	58%	2.1
2000	96	34	35%	27	79%	361	258	71%	2.7
2001	97	25	26%	13	52%	215	77	36%	0.8
2002	90	18	20%	14	78%	181	109	60%	1.2
2003	86	25	29%	19	76%	221	153	69%	1.8
2004	80	27	34%	19	70%	305	194	64%	2.4
2005	75	23	31%	13	57%	279	130	47%	1.7
2006	73	20	27%	13	65%	208	113	54%	1.5
2007	74	20	27%	13	65%	217	129	59%	1.7
2008	78	19	24%	14	74%	176	90	51%	1.2
2009	62	20	32%	9	45%	223	71	32%	1.1
2010	65	17	26%	11	65%	157	93	59%	1.4
2011	70	17	24%	12	71%	158	95	60%	1.4
2012	63	14	22%	11	79%	169	111	66%	1.8
2013	60	22	37%	16	73%	267	177	66%	3.0
2014	59	16	27%	9	56%	153	92	60%	1.6
2015	60	11	18%	4	36%	103	37	36%	0.6
2016	60	13	22%	10	77%	134	77	57%	1.3
2017	61	11	18%	7	64%	112	73	65%	1.2
2018	60	10	17%	4	40%	86	41	48%	0.7
2019	81	9	11%	5	56%	58	28	48%	0.3
2020	65	10	15%	3	30%	119	36	30%	0.6
38 - Year Total	**2,484**	**768**		**481**		**7,799**	**4,324**		
Average	65	20	31%	13	63%	205	114	55%	1.7