

Here is the full text that we sent to The Hockey News that appeared in the [February 13, 2012 Issue](#) under the heading "Just Win, Baby". Following that is some additional analyses that were too lengthy to include in what we sent to [THN](#).

What's Your Point?

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As hockey fans, we love the dramatic thrill of the shootout and the chase for Stanley Cup playoff spots. As a statistician and a hockey coach, we cringe at the notion of having differing numbers of points awarded for each game. We wanted to know if the outcomes of an NHL season would be different under an alternative set of rules for awarding points for wins, overtime wins and shootout wins. Further our own work has led us to conclude that the victories in the shootout are essentially the equivalent of tossing a coin.

To satisfy our interests we did a small study of the consequences of different scoring systems on the six playoff races since the shootout was initiated in the 2005-6 season. We considered four scoring approaches:

1. Current NHL scoring method: 2 points for a win in regulation or OT or a shootout, 1 point for a loss in OT or a shootout.
2. Old NHL scoring method (2PT): 2 points for a win, 1 for each team for a tie at the end of OT, no shootout.
3. Five point system: 5 points for a win in regulation, 4 points for a win in OT, 3 points for a win in a shootout, 1 point for an OT loss and 2 points for a shootout loss.
4. Three point system: 3 points for a win in regulation, 2 points for a win in OT or in a shootout and 1 point for a loss in OT or a shootout.

The Five Point system (5PT) has been proposed by hockey analyst Alan Ryder and others. The Three Point (3PT) system has been proposed by several commentators as well. All of the methods besides the current one have each game worth the same number of points.

For each of the past six seasons we recalculated the points that every team would have obtained under each of the four scoring systems. We found that there were very strong correlations between the systems on how they ranked teams. Really good teams were always at or near the top; poorly performing teams were always at or near the bottom. The current system was less correlated with the other systems but the average rank correlation between the current and the other systems was still very high ($r > 0.95$). There are differences between the systems but they are slight. These ideas can be illustrated by looking at the rankings for the 2010-11 Eastern Conference given in Table 1 below. We, of course, recognize that teams potentially would have played differently under each of these systems.

Table 1: 2010-11 Eastern Conference Final Standings
(Sorted by Current Scoring System)

Team	Current	2PT	5PT	3PT
WASHINGTON (x)	107	93	238	141
PHILADELPHIA (x)	106	100	245	147
PITTSBURGH (x)	106	91	231	140
BOSTON (x)	103	100	242	146
TAMPA BAY (x)	103	89	227	135
BUFFALO (x)	96	81	206	124
MONTRÉAL (x)	96	88	220	132
NY RANGERS (x)	93	81	207	125
CAROLINA	91	80	200	120
TORONTO	85	78	190	115
NEW JERSEY	81	71	184	109
ATLANTA	80	65	169	99
OTTAWA	74	70	169	102
NY ISLANDERS	73	62	154	92
FLORIDA	72	62	155	92

(x) indicates that a team made the playoffs

Sorted by their points under the current system, we can see that there is general agreement between the scoring systems about which are the top teams. There is some shuffling of the rankings of the teams under the other systems. For example, under the Three Point system or the Five Point system, the Boston Bruins would have been ranked second rather than fourth. Additionally, the same eight teams would have made the Stanley Cup Finals under any of these systems. That is not always the case but it happened more often than not.

Having looked at all of this, we still prefer a scoring system that awards the same number of points per game for every game. Our slight preference is the 3 points/game system which would give slightly different results than the current. We think this system rewards teams that win. Isn't that the point of playing the games.

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The following pages contain some graphical and tabular summaries of the last six NHL Stanley Cup Playoff Races. In particular we present two sets of analyses. The first described below is one that graphically looks at each of the playoff races for the Eastern and Western Conferences over the last six seasons. The second is a numerical analysis of the number of times that a given teams ranking changed over the course of the second half of a given season

NHL East, 2010-11, Current

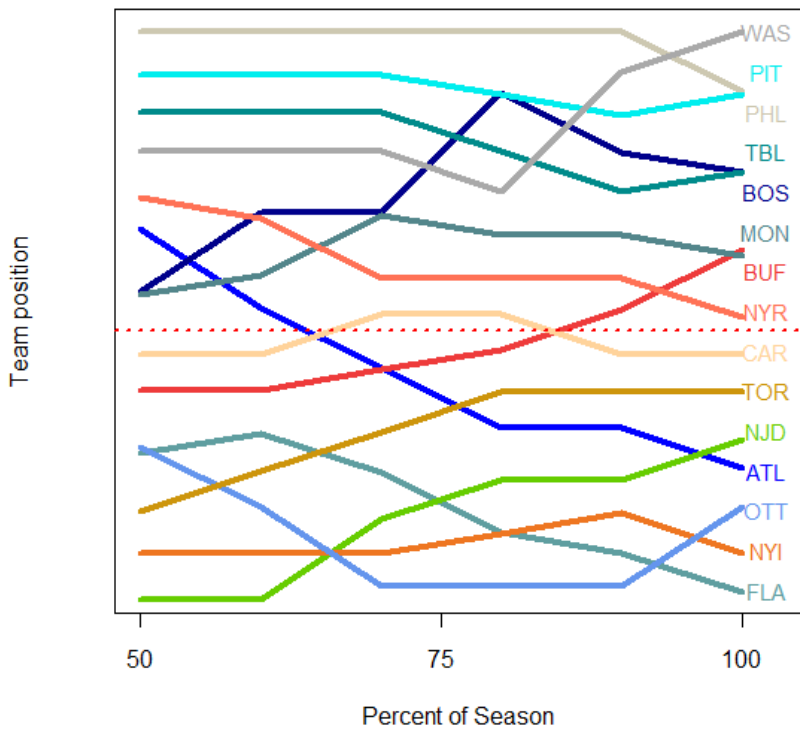


Figure 1: NHL Eastern Conference Rank for Second Half Of 2010-11 Regular Season

the ranks, not the total number of points that each team had. Ties are also possible. Note that 80% of the way through the 2010-11 regular season, Pittsburgh (PIT) and Boston (BOS) were tied for the 2nd spot. The dashed red line on each graph represents the cutoff between making the playoffs (above the red line) and not making the playoffs (below the red line).

On the pages of the Appendix that follows, we have laid out the pages so that the four point systems for a given season are across a single page. Each page has eight version of the figure above. The Eastern Conference rankings are across the top and the Western Conference rankings are across the bottom. The points systems are ordered in the following manner from left to right: Current system, 5PT system, 3PT system, 2PT system.

The next aspect of the NHL scoring systems that we looked at was the changes in races. Edward Fraser of The Hockey News indicated to us that one of the reasons for having the current scoring system was that it resulted in tighter Stanley Cup Playoff races. To test this we calculated the number of changes in ranks within conference standings that occurred at every 10% of the season at or after half way through each season (i.e. changes

For each graph, we present the rank order of the NHL teams based upon their point totals for 50%, 60%, 70%, 80%, 90% and 100% of the season. Figure 1 below has an example of these charts using the current system for assigning points to NHL games. We repeat this figure for both conferences, all four point systems for each of the past six NHL regular seasons. This figure has the standings for the NHL's Eastern Conference. On the right hand side of the graph teams are labels with the team name in the same color as their graph. For example, the rankings for Toronto (TOR) is presented in brown while the rankings for Washington (WAS) is presented in silver. Our rankings are purely based upon each team's point total for a given point in the season. We do not account for divisional leaders. Further the graphs represent

between 50 % and 60% through the changes between 90% and 100%.) We consider two metrics here. The first metric is the total number of times that all teams ranks changed over the last half of the season for each of the four scoring methods ¹. Table 2 below gives a summary of this metric over the past six Stanley Cup playoff races. Our second metric is the sum total of changes in rank over the last half of the season calculated at 10% increments². Table 3 contains the outcomes for that metric.

Table 2: Summary of Number of Changes in Rank of the Second Half of NHL Regular Seasons at 10% Intervals

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Current	50	48	49	55	42	55
5PT	69	55	49	67	48	56
3PT	68	50	49	59	42	45
2PT	50	43	39	61	48	33

In Table 2 we can see that more changes occurred using the 5PT system than any other and this was true for all seasons. The thesis that the Current system is an improvement over the old 2PT system is true about half of the time. On the other hand, the 3PT system, which assigns three points between the two teams, did at least as well as the current system in all but one year, 2010-11. Clearly a 5PT system gives the most fluid of playoff races using this metric. Among the remaining three methods, the 3PT slightly outdoes the Current and the Current slightly outdoes the 2PT.

Table 3: Summary of Total Changes in Team Ranks of the Second Half of NHL Regular Seasons at 10% Intervals

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Current	124	140	170	146	154	154
5PT	112	136	173	135	162	156
3PT	102	142	167	143	148	153
2PT	113	157	177	137	149	143

Using a measure of total changes in rank, we find a different picture. For this metric there is less consistency in between the point systems. There is no single system that outperforms the others. The Current system has the highest total for two years, the 5PT has the maximum in the two most recent years, and the 2PT system has the maximum in the other two years. While the 3PT system is never the maximum, it is only the minimum twice. All of this suggests that none of these systems are superior to the others on this metric.

¹ Mathematically, our metric is $\sum_i \sum_{t=0}^4 1_{\{\pi_{it} - \pi_{it+1}\}}$ where π_{it} is the rank of the i^{th} team at time t within their conference and t is the time interval where 0 represents the 50th percentile of the season, 1 is the 60th percentile, ... , and 5 is the 100th percentile or end of the season.

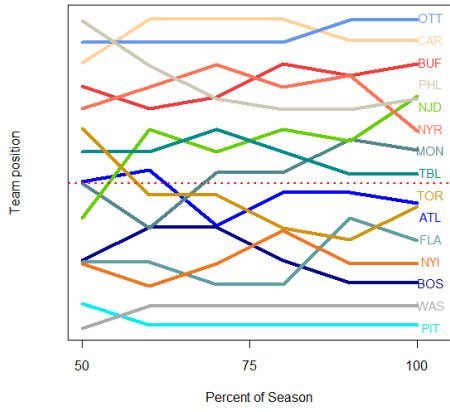
² For the sum total we take $\sum_i \sum_{t=0}^4 |\pi_{it} - \pi_{it+1}|$ using the same notation as the footnote above.

To complete our analyses we have added tables to the end of this document which give the final standings for each of the six seasons under each of the four point systems. We also include each team's conference affiliation and whether or not they made the playoffs.

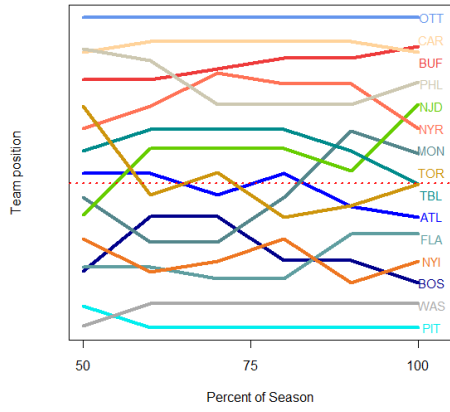
The fundamental argument that we made in The Hockey News above still holds in the graphs below. The methods that have been proposed for awarding points in the NHL are in very strong (but not perfect) agreement at the end of an 82-game season. For that reason we don't see much *point* in getting too excited about the differences between these systems.

APPENDIX: Rest of this page left blank

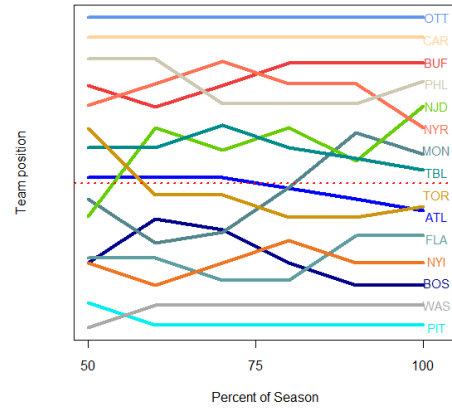
NHL East, 2005-06, Current



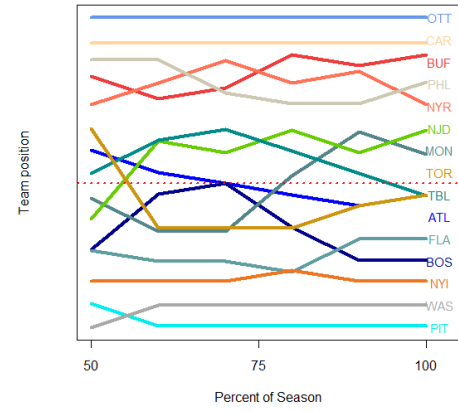
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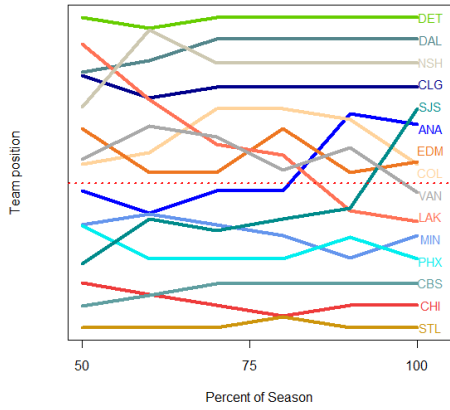
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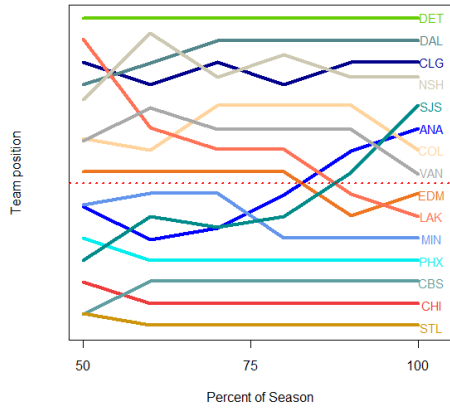
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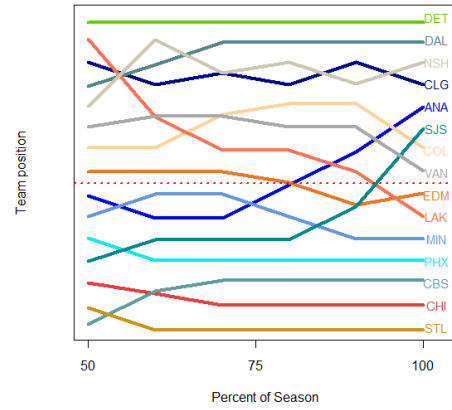
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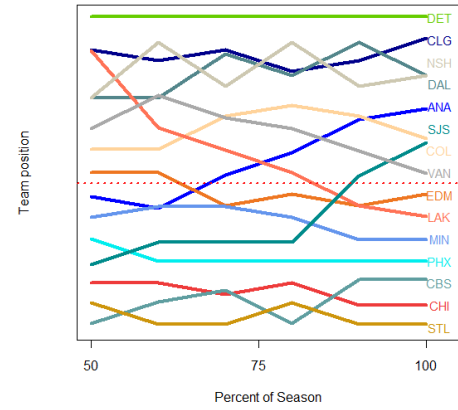
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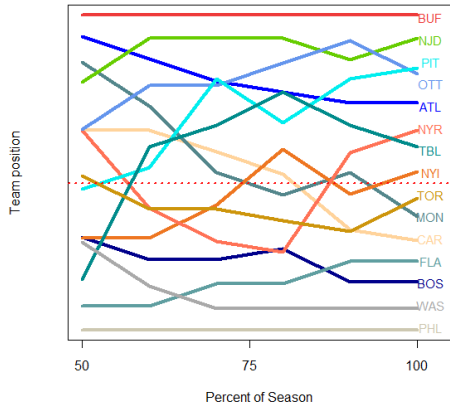
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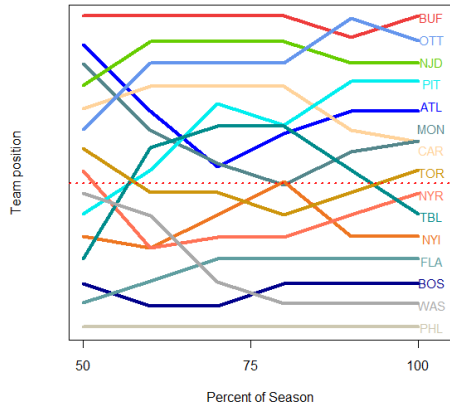
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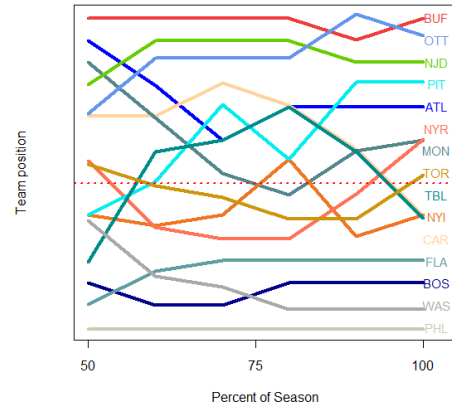
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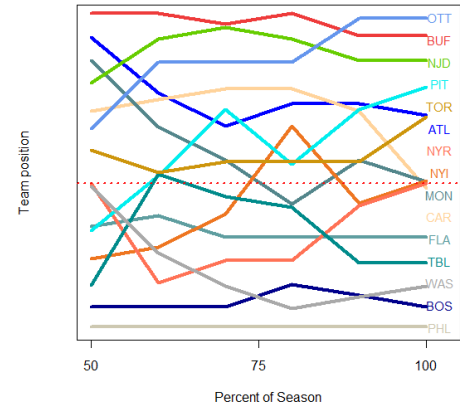
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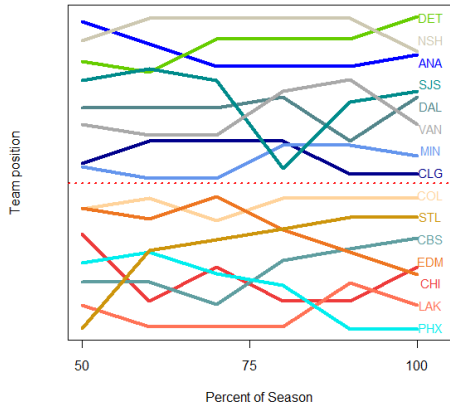
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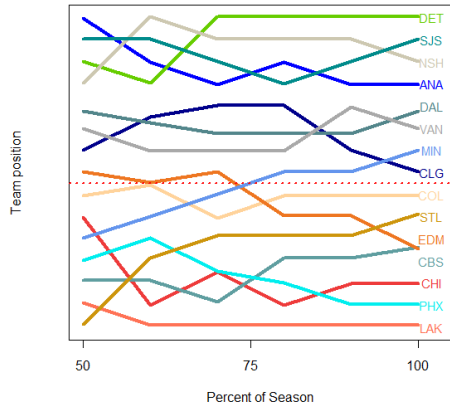
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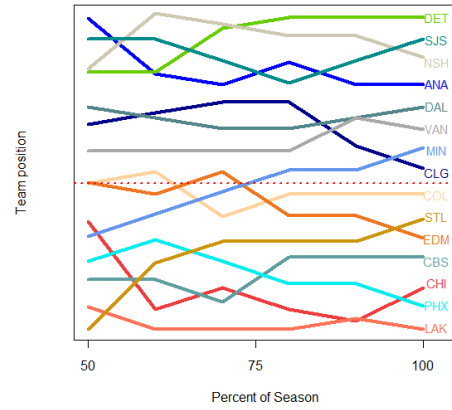
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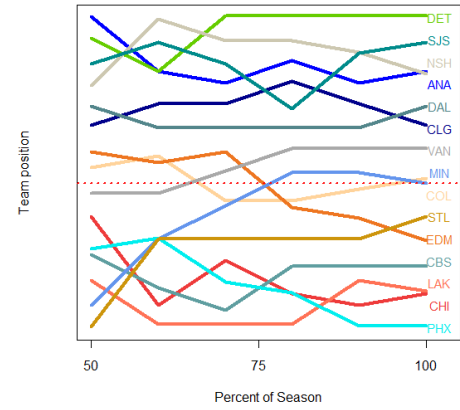
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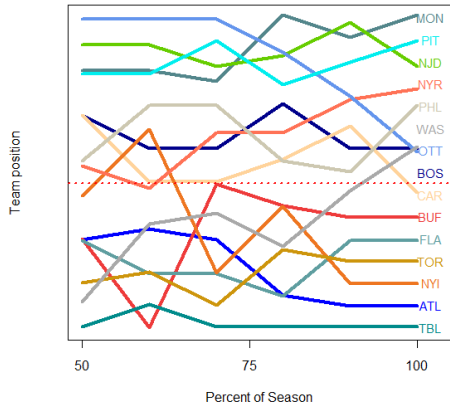
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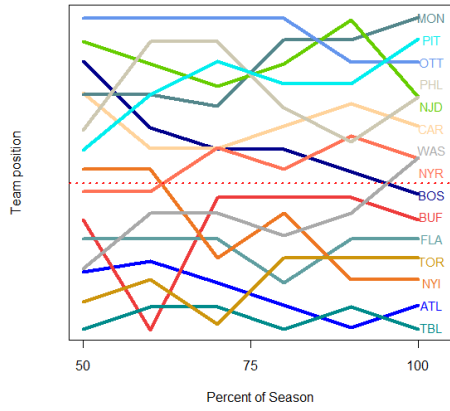
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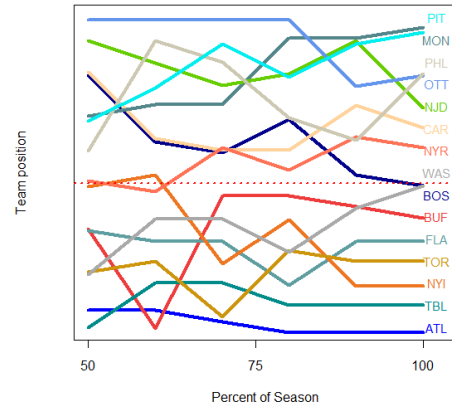
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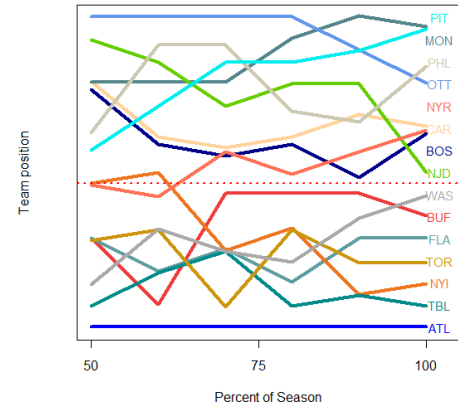
NHL East, 2007-08, 5PT



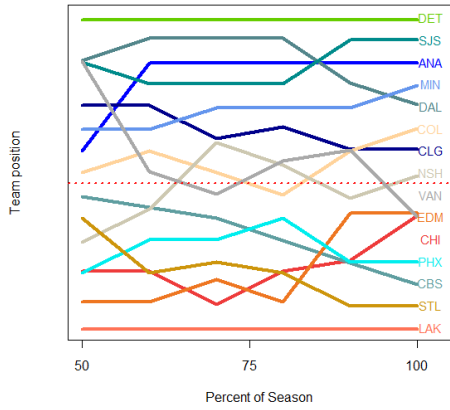
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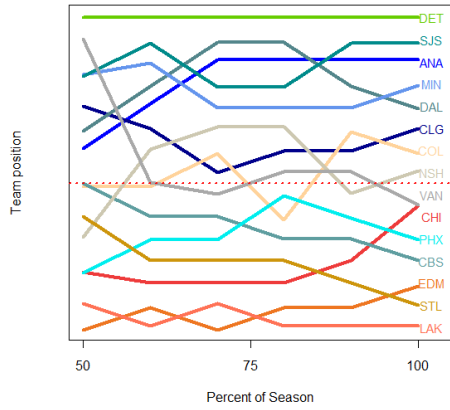
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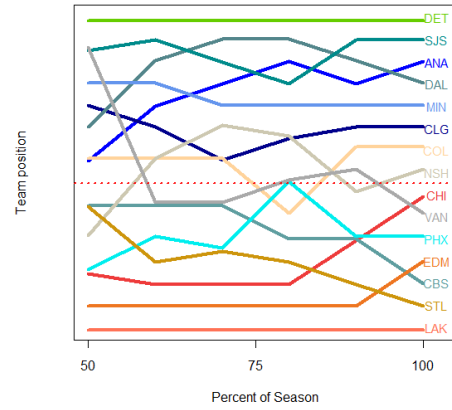
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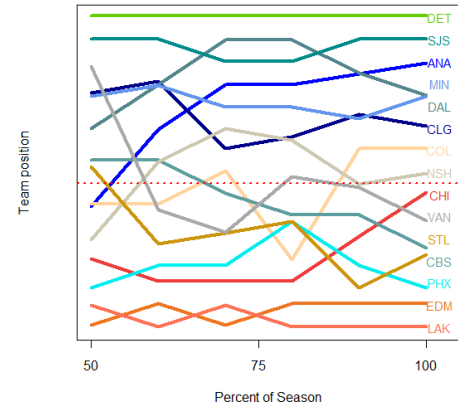
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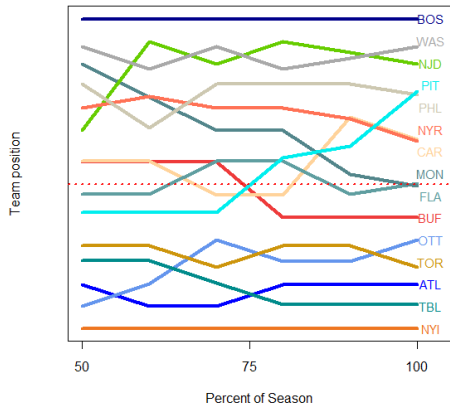
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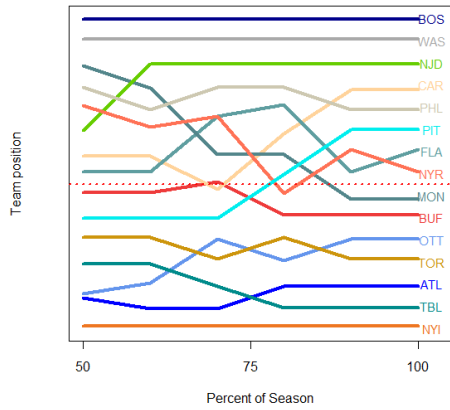
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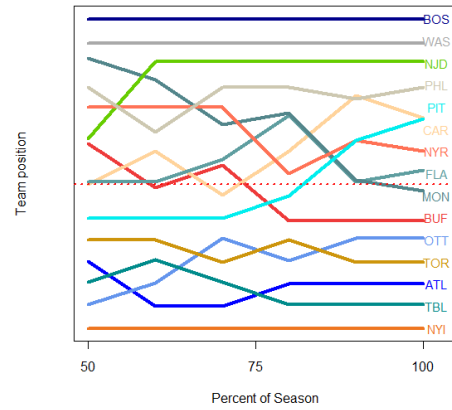
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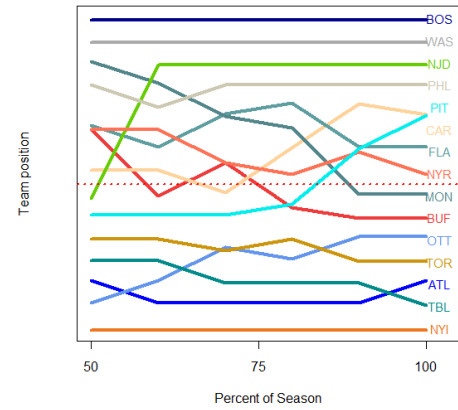
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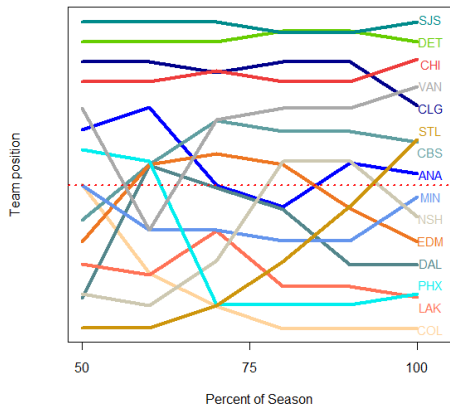
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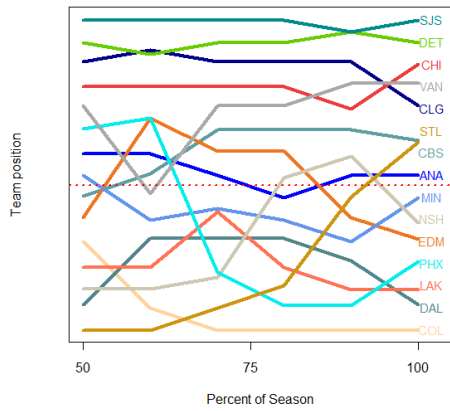
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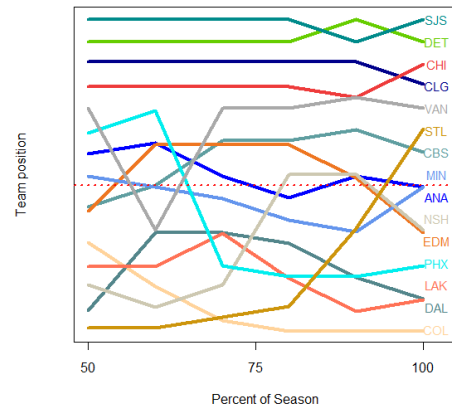
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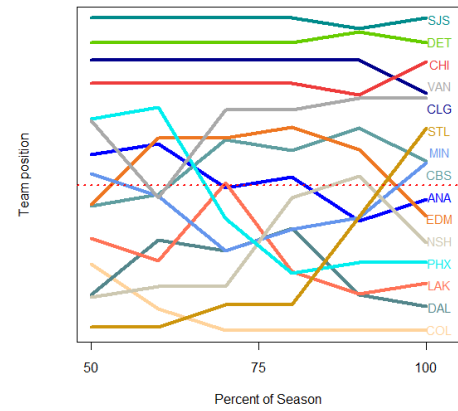
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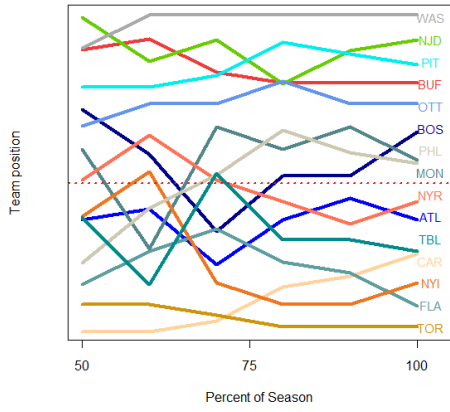
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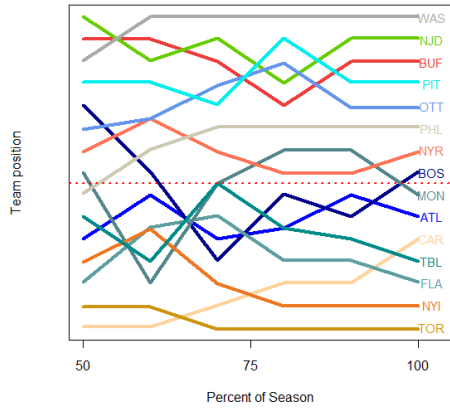
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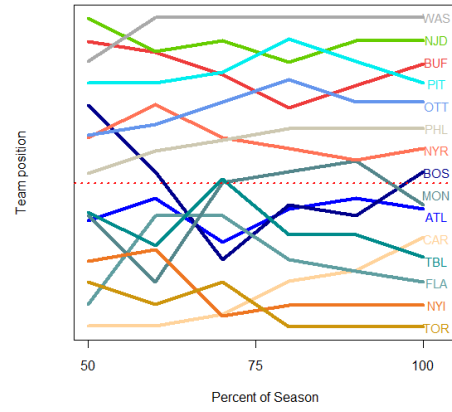
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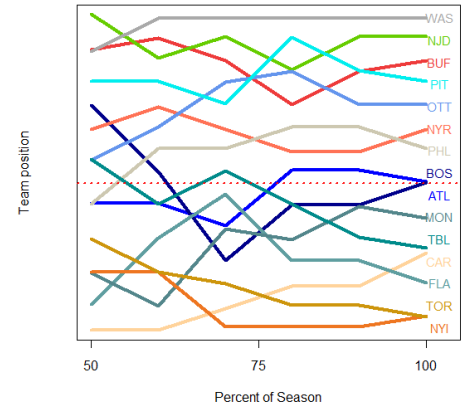
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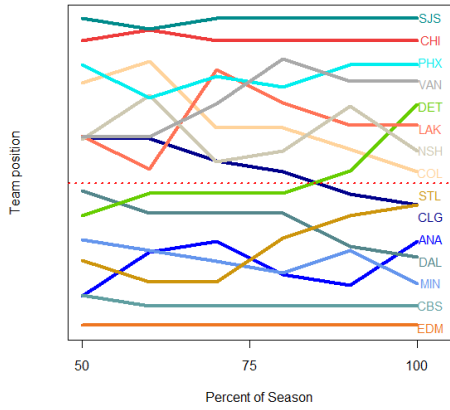
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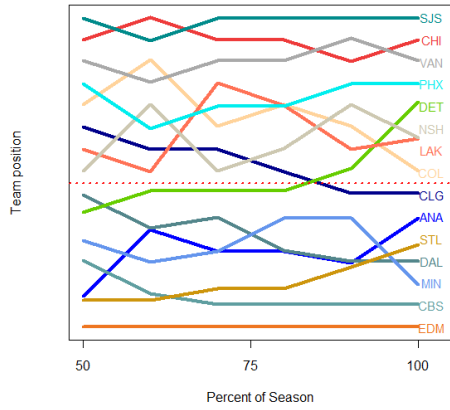
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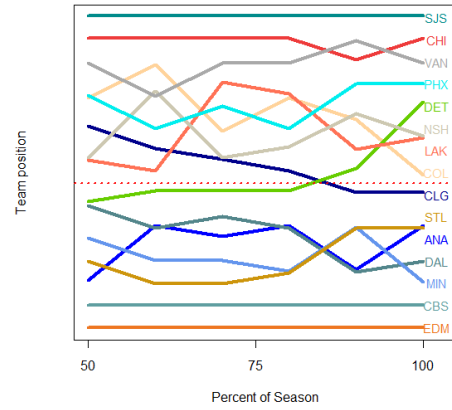
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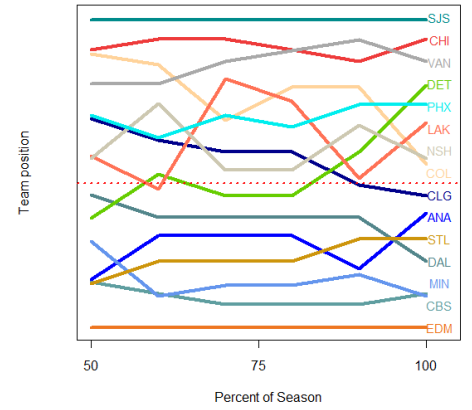
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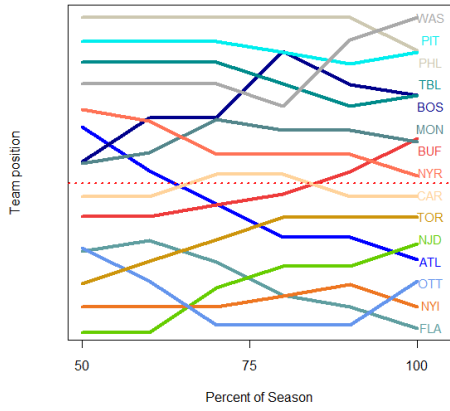
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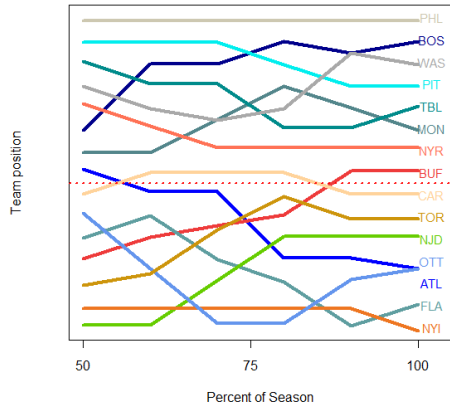
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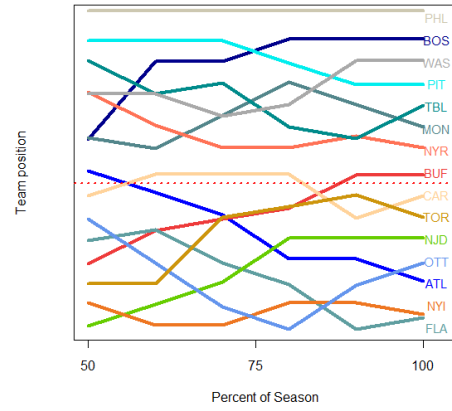
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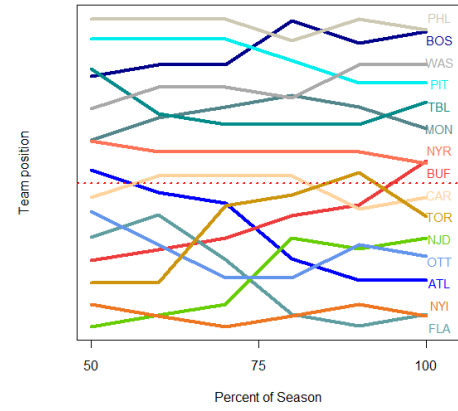
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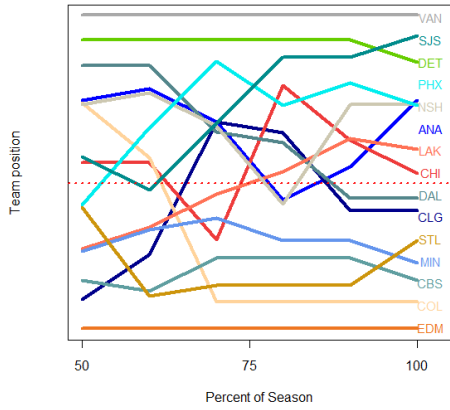
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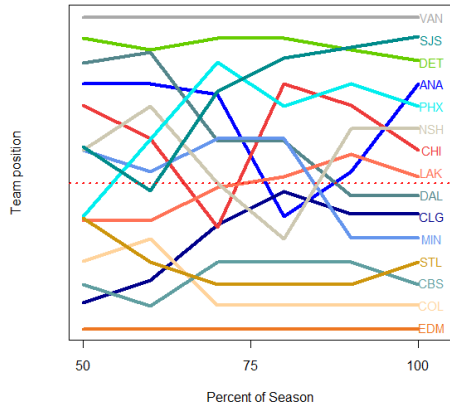
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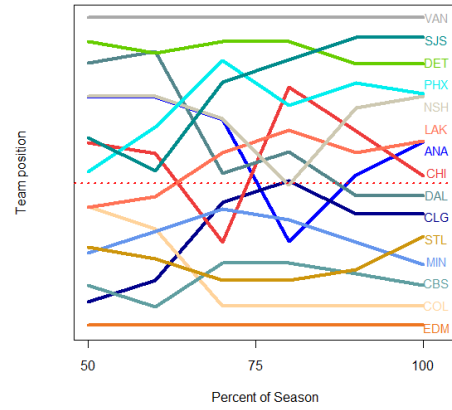
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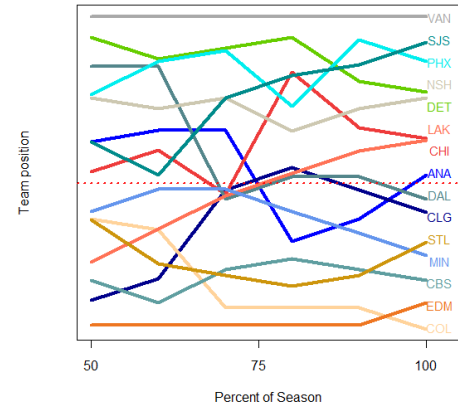
NHL West, 2010-11, 5PT



NHL West, 2010-11, 3PT



NHL West, 2010-11, 2PT



2005-06 REGULAR SEASON

	Current	2PT	5PT	3PT	Conference	Playoffs
BUFFALO	113	98	251	151	E	Y
NEW JERSEY	107	94	239	143	E	Y
OTTAWA	105	101	249	149	E	Y
PITTSBURGH	105	89	226	136	E	Y
ATLANTA	97	83	209	126	E	Y
NY RANGERS	94	82	204	124	E	Y
TAMPA BAY	93	78	202	122	E	Y
NY ISLANDERS	92	82	199	122	E	Y
TORONTO	91	83	206	123	E	N
MONTRÉAL	90	82	207	124	E	N
CAROLINA	88	82	207	122	E	N
FLORIDA	86	81	192	116	E	N
BOSTON	76	63	163	98	E	N
WASHINGTON	70	65	159	93	E	N
PHILADELPHIA	56	52	123	74	E	N
DETROIT	113	108	264	158	W	Y
ANAHEIM	110	101	251	149	W	Y
NASHVILLE	110	101	253	152	W	Y
DALLAS	107	92	237	142	W	Y
SAN JOSE	107	104	257	155	W	Y
VANCOUVER	105	88	234	137	W	Y
MINNESOTA	104	87	228	135	W	Y
CALGARY	96	91	222	134	W	Y
COLORADO	95	87	218	131	W	N
ST LOUIS	81	71	173	105	W	N
COLUMBUS	73	64	163	97	W	N
CHICAGO	71	62	156	93	W	N
EDMONTON	71	67	163	99	W	N
LOS ANGELES	68	62	145	89	W	N
PHOENIX	67	60	150	91	W	N

2006-07 REGULAR SEASON

	Current	2PT	5PT	3PT	Conference	Playoffs
BUFFALO	113	98	251	151	E	Y
NEW JERSEY	107	94	239	143	E	Y
OTTAWA	105	101	249	149	E	Y
PITTSBURGH	105	89	226	136	E	Y
ATLANTA	97	83	209	126	E	Y
NY RANGERS	94	82	204	124	E	Y
TAMPA BAY	93	78	202	122	E	Y
NY ISLANDERS	92	82	199	122	E	Y
TORONTO	91	83	206	123	E	N
MONTRÉAL	90	82	207	124	E	N
CAROLINA	88	82	207	122	E	N
FLORIDA	86	81	192	116	E	N
BOSTON	76	63	163	98	E	N
WASHINGTON	70	65	159	93	E	N
PHILADELPHIA	56	52	123	74	E	N
DETROIT	113	108	264	158	W	Y
ANAHEIM	110	101	251	149	W	Y
NASHVILLE	110	101	253	152	W	Y
DALLAS	107	92	237	142	W	Y
SAN JOSE	107	104	257	155	W	Y
VANCOUVER	105	88	234	137	W	Y
MINNESOTA	104	87	228	135	W	Y
CALGARY	96	91	222	134	W	Y
COLORADO	95	87	218	131	W	N
ST LOUIS	81	71	173	105	W	N
COLUMBUS	73	64	163	97	W	N
CHICAGO	71	62	156	93	W	N
EDMONTON	71	67	163	99	W	N
LOS ANGELES	68	62	145	89	W	N
PHOENIX	67	60	150	91	W	N

2007-08 REGULAR SEASON

	Current	2PT	5PT	3PT	Conference	Playoffs
MONTRÉAL	104	94	236	141	E	y
PITTSBURGH	102	94	232	141	E	y
NEWJERSEY	99	84	218	130	E	y
NYRANGERS	97	85	212	127	E	y
PHILADELPHIA	95	89	218	131	E	y
BOSTON	94	85	209	126	E	y
OTTAWA	94	88	219	131	E	y
WASHINGTON	94	83	212	126	E	y
CAROLINA	92	85	215	128	E	N
BUFFALO	88	79	198	117	E	N
FLORIDA	85	76	191	114	E	N
TORONTO	83	75	184	111	E	N
NYISLANDERS	79	69	172	104	E	N
ATLANTA	76	61	160	95	E	N
TAMPABAY	71	67	159	98	E	N
DETROIT	115	108	270	162	W	Y
SANJOSE	108	99	246	148	W	Y
ANAHEIM	102	90	230	137	W	Y
MINNESOTA	98	89	226	133	W	Y
DALLAS	97	89	222	134	W	Y
COLORADO	95	84	212	128	W	Y
CALGARY	94	88	214	130	W	Y
NASHVILLE	91	83	208	124	W	Y
CHICAGO	88	79	198	119	W	N
EDMONTON	88	69	181	110	W	N
VANCOUVER	88	78	198	117	W	N
PHOENIX	83	74	189	112	W	N
COLUMBUS	80	75	182	109	W	N
STLOUIS	79	75	176	108	W	N
LOSANGELES	71	64	158	96	W	N

2008-09 REGULAR SEASON

	Current	2PT	5PT	3PT	Conference	Playoffs
BOSTON	116	109	270	162	E	Y
WASHINGTON	108	98	249	148	E	Y
NEW JERSEY	106	91	240	142	E	Y
PHILADELPHIA	99	89	223	133	E	Y
PITTSBURGH	99	87	222	132	E	Y
CAROLINA	97	87	224	132	E	Y
NY RANGERS	97	84	212	128	E	Y
FLORIDA	93	86	214	127	E	Y
MONTRÉAL	93	82	205	123	E	N
BUFFALO	91	81	201	122	E	N
OTTAWA	83	76	186	112	E	N
TORONTO	81	71	174	105	E	N
ATLANTA	76	65	164	100	E	N
TAMPA BAY	66	61	140	85	E	N
NY ISLANDERS	61	55	135	81	E	N
SAN JOSE	117	107	265	160	W	Y
DETROIT	112	103	254	154	W	Y
CHICAGO	104	94	235	140	W	Y
VANCOUVER	100	92	231	137	W	Y
CALGARY	98	92	229	138	W	Y
COLUMBUS	92	81	205	122	W	Y
ST LOUIS	92	82	205	123	W	Y
ANAHEIM	91	79	201	121	W	Y
MINNESOTA	89	81	199	121	W	N
NASHVILLE	88	76	195	116	W	N
EDMONTON	85	78	190	116	W	N
DALLAS	81	70	175	105	W	N
LOS ANGELES	79	71	176	105	W	N
PHOENIX	79	75	183	111	W	N
COLORADO	69	57	148	89	W	N

2009-10 REGULAR SEASON

Team	Current	2PT	5PT	3PT	Conference	Playoffs
WASHINGTON	121	110	273	164	E	Y
NEW JERSEY	103	95	238	143	E	Y
PITTSBURGH	101	87	222	134	E	Y
BUFFALO	100	90	227	135	E	Y
OTTAWA	94	84	216	128	E	Y
BOSTON	91	77	193	116	E	Y
MONTRÉAL	88	73	188	112	E	Y
PHILADELPHIA	88	82	204	123	E	Y
NY RANGERS	87	83	198	121	E	N
ATLANTA	83	77	184	112	E	N
CAROLINA	80	71	177	106	E	N
TAMPA BAY	80	71	176	105	E	N
NY ISLANDERS	79	65	165	99	E	N
FLORIDA	77	69	169	101	E	N
TORONTO	74	65	155	95	E	N
SAN JOSE	113	105	257	156	W	Y
CHICAGO	112	97	250	149	W	Y
PHOENIX	107	88	230	138	W	Y
VANCOUVER	103	95	242	144	W	Y
DETROIT	102	91	226	135	W	Y
LOS ANGELES	101	87	223	133	W	Y
NASHVILLE	100	86	223	133	W	Y
COLORADO	95	86	213	129	W	Y
CALGARY	90	85	209	125	W	N
ST LOUIS	90	80	198	120	W	N
ANAHEIM	89	81	201	120	W	N
DALLAS	88	79	193	116	W	N
MINNESOTA	84	74	190	112	W	N
COLUMBUS	79	74	178	106	W	N
EDMONTON	62	53	132	80	W	N

2010-11 REGULAR SEASON

Team	Current	2PT	5PT	3PT	Conference	Playoffs
WASHINGTON	107	93	238	141	E	Y
PHILADELPHIA	106	100	245	147	E	Y
PITTSBURGH	106	91	231	140	E	Y
BOSTON	103	100	242	146	E	Y
TAMPA BAY	103	89	227	135	E	Y
BUFFALO	96	81	206	124	E	Y
MONTRÉAL	96	88	220	132	E	Y
NY RANGERS	93	81	207	125	E	Y
CAROLINA	91	80	200	120	E	N
TORONTO	85	78	190	115	E	N
NEW JERSEY	81	71	184	109	E	N
ATLANTA	80	65	169	99	E	N
OTTAWA	74	70	169	102	E	N
NY ISLANDERS	73	62	154	92	E	N
FLORIDA	72	62	155	92	E	N
VANCOUVER	117	109	272	163	W	Y
SAN JOSE	105	95	239	143	W	Y
DETROIT	104	91	232	138	W	Y
ANAHEIM	99	86	225	133	W	Y
NASHVILLE	99	91	221	135	W	Y
PHOENIX	99	92	222	135	W	Y
LOS ANGELES	98	87	217	133	W	Y
CHICAGO	97	87	218	131	W	Y
DALLAS	95	85	213	127	W	N
CALGARY	94	83	204	124	W	N
ST LOUIS	87	80	196	118	W	N
MINNESOTA	86	78	197	117	W	N
COLUMBUS	81	71	176	105	W	N
COLORADO	68	56	141	86	W	N
EDMONTON	62	58	140	83	W	N