

DEVELOPING ANALYTICS FOR DEVELOPMENT LEAGUES

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Ottawa Analytics
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Outline

- Introduction to CHLStats.com
- Technologies
- Features
- Data Sources
- Issues
- Projects
- Future Statistics
 - Goalie Statistics
- Conclusion

Introduction to CHLStats.com

- Background in Machine Learning
- Blogging on CanucksArmy.com
- Interest in Draft Analytics and Prospect Prediction
- Developed CHLStats.com to further access to statistics at the major junior level
 - “Extra Skater” of Prospect Stats

Technologies

- Language: Python 2.7
- Framework: Flask 0.10
- Scraping: BeautifulSoup 4 with lxml
- Database: sqlite3
- Server side: wsgi on nginx
- Host: PythonAnywhere

Features – Team Statistics

CHLStats.com WHL OHL QMJHL Players WJC2015

OHL 2014-2015 Statistics

<< 2013-2014

Team	Est. Fenwick Close	GP	SF	SA	GF	GA	SOW	SOL	Sh%	Sv%	PDO
Oshawa Generals	58.022%	49	1812	1312	204	115	2	2	11.16	91.374	102.534
North Bay Battalion	56.91%	47	1602	1211	159	127	1	4	9.869	89.809	99.678
Erie Otters	56.578%	47	1664	1329	227	145	4	2	13.434	89.224	102.658
Sault Ste. Marie Greyhounds	55.954%	48	1853	1492	231	154	2	2	12.372	89.799	102.171
Kitchener Rangers	55.65%	47	1685	1388	152	158	3	6	8.859	89.001	97.86

- Est. Fenwick Close (B. Wendorf's 2p Sf%)
- Team Shooting + Save Percentage
- PDO

Features – Player Statistics

CHLStats.com WHL OHL QMJHL Players WJC2015

Players Database

League Season
Filters: Team min GP Position Age

#	Pos	Name	Team	Age	GP	G	A	Pts	PPG	aaPPG	TmPt%	TmGI%	ESGF%	rel ESGF%	eTOI	eP/60
11	LW	Perlini, Brendan	Niagara IceDogs	18.387	22	16	16	32	1.45	1.05	18.71%	9.36%	64.0%	12.0%	20.9	4.18
5	D	Garcia, C.J.	Guelph Storm	18.617	46	4	11	15	0.33	0.29	9.04%	2.41%	58.0%	1.0%	31.17	0.63
17	RW	Scott, Justin	Barrie Colts	19.094	47	18	20	38	0.81	0.47	19.9%	9.42%	69.0%	25.0%	15.64	3.1
21	LD	Middleton, Jacob	Ottawa 67's	18.705	44	2	15	17	0.39	0.34	10.69%	1.26%	54.0%	9.0%	23.08	1.0

- eTOI (Tulsky)
- ePoints / 60
- PPG
- Team Point %
- Team Goal %
- ES GF%
- Relative ES GF%
- Age (in fractional years)
- Age Adjusted Points/Game
- NHLe
- IPP
- QMJHL:
 - SOG, Sh%, SOG/G, Dangerous Shots, DS%, FO%

Data Sources

- Parsing Game Sheets daily; No “RTSS” data

OHL OFFICIAL SITE OF THE ONTARIO HOCKEY LEAGUE

View Score's Head | Text Box Score |

GAME SUMMARY 20408
Thursday, February 5, 2015 - Status: Final
as of Thu February 05, 2015 09:39 PM Eastern Standard Time

SHOTS					SCORING				
	1	2	3	Total	1	2	3	Total	
Sealt Ste. Marie Greyhounds	16	5	15	40	Sealt Ste. Marie Greyhounds	4	2	0	6
Niagara IceDogs	17	20	7	44	Niagara IceDogs	2	5	1	8

VISITORS: SAULT STE. MARIE										HOME: NIAGARA									
PLAYER	Position	C	A	PP	SH	PTS	ASS	PP	SH	PTS	ASS	PP	SH	PTS	ASS				
A 3 Danyl, Tyler	D	0	0	-4	0	0	0	0	0	0	0	0	0	0	0				
7 DeAngelis, Anthony	D	0	2	+1	4	0	0	0	0	0	0	0	0	0	0				
8 Hoke, Tyler	D	0	0	+2	0	0	0	0	0	0	0	0	0	0	0				
9 Sanyshyn, Zachary	RW	1	1	+2	2	0	0	0	0	0	0	0	0	0	0				
13 Goetz, Haigen	RW	0	0	-1	2	0	0	0	0	0	0	0	0	0	0				
14 Hoke, Bryan	LW	1	0	0	0	0	0	0	0	0	0	0	0	0	0				
18 Speers, Blake	RW	1	0	+3	0	0	0	0	0	0	0	0	0	0	0				
19 McCann, Jared	C	0	0	-3	0	0	0	0	0	0	0	0	0	0	0				
20 Ritchie, Neil	LW	1	0	-2	0	0	0	0	0	0	0	0	0	0	0				
24 Boland, Connor	D	0	0	0	2	0	0	0	0	0	0	0	0	0	0				
C 25 Hrus, Darnell	D	0	1	-2	2	0	0	0	0	0	0	0	0	0	0				
28 Gillingham, Tim	LW	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
27 Bunting, Michael	LW	0	1	+1	0	0	0	0	0	0	0	0	0	0	0				
28 Tolshinsky, Sergey	RW	0	0	-3	0	0	0	0	0	0	0	0	0	0	0				
33 Quattri, Gabe	C	0	0	-3	0	0	0	0	0	0	0	0	0	0	0				
37 Bourque, Gaudy	D	0	0	+1	0	0	0	0	0	0	0	0	0	0	0				
38 Verbeek, Hayden	LW	1	1	+1	0	0	0	0	0	0	0	0	0	0	0				
66 Bailey, Jason	RW	1	1	-1	0	0	0	0	0	0	0	0	0	0	0				
TEAM		0	0	0	0	0	0	0	0	0	0	0	0	0	0				
TOTAL		0	0	0	14	0	0	0	0	0	0	0	0	0	0				

Player	GA	Min	SH	SVS	PPM
31 Halverson, Brandon	-	-	-	-	-
32 Razymakers, Joseph	7	59:48	43	30	0

Head Coach: Sheldon Kaele
General Manager: Kyle Rafis

NOTE: Players listed in *italics* are the starting lineup.

Scoring					Penalties				
1. NIAG C. Verhaeghe, (21) (C. Payne, A. Haydon), 1:48	1-SSM K. Goetz, 0:40 - Unsportsmanlik								
1. NIAG R. Marzha, (4) (M. Aagaard), 6:28	1- NIAG M. Fitzmorris, 6:40 - Slashi								
1. SSM H. Verbeek, (4) (Z. Sanyshyn), 6:38	1- SSM J. McCann, 11:25 - High Stick								
1. SSM B. Speers, (21) (A. DeAngelo), 7:46	1- SSM Z. Sanyshyn, 16:55 - Tripping								
1. SSM J. Bailey, (30) (D. Nurse), 12:04 (SH)	1- SSM D. Nurse, 19:25 - Roughing								
1. SSM B. Moore, (18) (M. Bunting, A. DeAngelo), 10:33	1- NIAG C. Payne, 19:25 - Roughing								
2. NIAG V. Dunn, (9) (C. Verhaeghe, B. Perlini), 9:06 (PP)	2- NIAG B. Brosnan, 0:48 - Tripping								
2. SSM N. Ritchie, (22) (J. Bailey), 9:29	2- SSM A. DeAngelo, 7:24 - Tripping								
2. NIAG A. DiFruscia, (12) (B. Brosnan), 10:13	3- SSM C. Boland, 0:15 - Holding								
2. SSM Z. Sanyshyn, (14) (H. Verbeek), 10:38	3- NIAG A. DiFruscia, 10:30 - Slashing								
2. NIAG C. Verhaeghe, (22) (B. Perlini), 11:50	3- SSM A. DeAngelo, 19:29 - Unsportsmanlik								
2. NIAG M. Aagaard, (5) (B. Brosnan, G. Knoff), 16:55									
2. NIAG B. Jenkins, (9) (J. Corneil, J. Maletta), 18:49									
3. NIAG B. Jenkins, (10) (J. Maletta, J. Corneil), 18:13 (EN)									

TOTAL						0	14
Goalies	GA	Min	SH	SVS	PPM		
31 Halverson, Brandon	-	-	-	-	-		
32 Razymakers, Joseph	7	59:48	43	30	0		

Head Coach: Sheldon Kaele
General Manager: Kyle Rafis

NOTE: Players listed in *italics*

Niagara (plus)		Sault Ste. Marie (minus)	
4 Vince Dunn	9 Tyler Hoke		
7 Mikkel Aagaard	24 Connor Boland		
10 Anthony DiFruscia	26 Tim Gettinger		
11 Brendan Perlini	33 Gabe Quattier		
21 Carter Verhaeghe			

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Credit: M. Pfeffer

Issues

- Poorly written HTML (harder to parse)
- Future changes to HTML will likely break tools
- Post-game changes to game data, difficult to adapt
- Slow websites (WHL.ca)
- Loading data with AJAX
- Untrustworthy data (e.g. height, scorer bias)
- Leagues will change game IDs (WHL)
- Partial Data (WHL shots)
- On ice data states varies between arena
- Player names and spelling is not always consistent
- Reordering names, player names with spaces
 - e.g. Vande Sompel, Mitchell. “Mitchel Vande Sompel”
 - e.g. Fournier, Jordan Ty. “Jordan Ty Fournier”

Future Statistics

- Statistics currently available to be implemented:
 - Player QoC, QoT
 - Vollman's Usage Charts Variants
 - Hockey-Reference's Goals Created
 - WAR
 - ES Scoring
 - Common Line Mates / Pairing Partners
 - Biological Metrics (Height / Weight)
- Team Level
 - Penalty Differentials
 - Pythag / Expected Win %
 - Strength of Schedule
- Goalie Data: Vollman's QS%, GSAA

Projects

- Machine Learning Game Predictions
 - Higher upper bound (~70%) vs NHL (64%)
- Drafting Inefficiencies
 - “Sham Sharron”
 - PPG vs CSS Ranks
- Height + PPG Success Binning
 - Credit (@MoneyPuck_)
- Era/Age Adjusting Points/Game
 - Credit: Rhys Jessop (@Thats_Offside)

Summary

- Analytics are evolving in other fields
- Code applicable to most North American Leagues
- Ideas applicable to most leagues
- Should use to identify players to further scout for drafting

Questions

CHLStats.com

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