

# MASSEY RATINGS

- **Inputs**

The computer considers the outcome of each game. Optionally, some games may be assigned more or less weight than usual (e.g. playoffs or exhibitions). All games are analyzed in concert, so that the impressiveness of each win is constantly being re-evaluated in light of the other results.

- **Model**

The mathematical rating model is based on maximizing the retrospective probability of the observed game results. Each outcome generates a “force” on the teams involved, attempting to push the winner above the loser. But as the algorithm adjusts the ratings to create an equilibrium, a ripple effect occurs throughout the entire network of teams. Opponents’ opponents’ opponents’ ... ad infinitum are influenced by some degree. By chains of interaction, it is possible to compare teams that are geographically dispersed.

- **Margin of Victory**

Each game score is translated to a probability that the winner is really the better team. A narrow win of 27-24 might translate to 58%, while a blowout of 45-14 gives 98%. The cap of 100% enforces diminishing returns to running up the score.

- **Pace**

The model does not discriminate against styles of play that result in fewer total points. In football for example, a team that typically wins games 24-10 may be considered more impressive than a team that wins 49-31 barnburners.

- **Strength of Schedule**

Each team is measured by its performance relative to the opposition faced. Ratings and strength of schedule are calculated simultaneously so that schematically

$$\text{rating} = \text{performance} + \text{strength of schedule}$$

The model is able to accurately compare e.g. a team that went 9-1 against weak competition to a team that went 6-4 against a brutal schedule.

- **Mismatches**

The model derives most of its information from games between teams of similar strength. Therefore there should be no incentive to scheduling inferior opponents, since there is limited reward to wins and potentially large downside in the unlikely event of an upset. With regard to strength of schedule, it is more difficult for an elite team to face #2 and #100 than to face #39 and #40.

- **Head-to-Head**

Sometimes lower ranked teams defeat higher ranked teams. These “upsets” are inevitable and should be tolerated since each team is rated according to its entire “body of work”. A single head-to-head result is not always consistent with rankings derived as a best fit for the entire season.

- **Objectivity**

All teams are treated equally and anonymously, without regard to name brands or affiliations. The computer can assess bad or mediocre teams just as well as the teams at the top.

- **Rating and Power**

A team’s rating is designed to reward the most impressive resumes, giving more credit to wins, regardless of how dominant they were. In contrast, the “Power” of a team is more indicative of the true strength of the team. The power of a team is broken in to offensive and defensive components, which can be combined to forecast typical scores for a given matchup, as well as the associated probabilities of winning.

## Boys' Water Polo Playoff Groupings 2018

Division 1/2	
Team	Power Ranking
Agoura	14.03554152
Aliso Niguel	12.10120724
Beckman	10.45524668
Corona Del Mar	15.74502808
Damien	10.44773774
Dana Hills	11.73479428
Dos Pueblos	11.9057449
Foothill/Santa Ana	16.45373204
Harvard Westlake	18.11316072
Huntington Beach	17.9594129
La Serna	12.01813742
Laguna Beach	14.20777182
Los Alamitos	11.71938548
Loyola	17.61608526
Lutheran/Orange	20.58043168
Mater Dei	21.21161176
Mira Costa	11.93591114
Murrieta Valley	11.86131876
Newport Harbor	18.3836303
Oaks Christian	17.15739366
Palos Verdes	11.77001306
Poly/Riverside	10.6381042
Redlands East Valley	13.49716148
San Clemente	11.5126673
Santa Margarita	17.93007032
Ventura	11.21795892
Villa Park	10.04248508
Wilson/Long Beach	10.21227966
Woodbridge	12.22663494

Division 3	
Team	Power Ranking
Ayala Ruben	9.94950532
Bonita	5.86539142
Chino Hills	7.20933864
Corona	6.04941468
Costa Mesa	8.33563194
Crescenta Valley	6.92520634
Edison	6.2583165
El Segundo	7.98462896
El Toro	7.56913048
Hoover	7.3239416
La Quinta/La Quinta	7.93432716
Los Osos	9.6495513
Malibu	7.96164424
Montebello	6.22478602
Moorpark	6.48584136
Newbury Park	5.77194428
Northwood	9.6821192
Notre Dame/S. Oaks	8.3459114
Peninsula	6.48935774
Redondo Union	8.11548364
Rio Mesa	6.262016
San Marcos	8.06695834
Santa Barbara	9.4140709
Santiago/Corona	6.35352928
Seegerstrom	6.04310934
Servite	9.6523823
South Pasadena	5.90503616
Temple City	6.8519622
Tesoro	6.09286544
Troy	7.03520822
Vista Murrieta	7.60093018
Walnut	7.67985854
Westlake	7.06049046
Yorba Linda	6.78044192

Division 1 and 2 will be separated into two divisions at the end of the 2018 season based on performance. Determinations will be made via advisory committee and power rankings.

PLAYOFF GROUPINGS ARE BASED ON INFORMATION SUBMITTED BY THE MEMBER SCHOOLS AND ARE SUBJECT TO CHANGE.

## Boys' Water Polo Playoff Groupings 2018

Division 4	
Team	Power Ranking
Alta Loma	4.88603964
Arcadia	2.31690018
Arlington	4.7157777
Buena Park	2.1259509
Burroughs/Burbank	5.67406548
Capistrano Valley	4.30651652
Carpinteria	2.32747078
Cerritos	5.10968162
Chaparral	4.11890298
Chino	2.82193136
Claremont	4.11594
Don Lugo	4.41973204
Esperanza	5.67435456
Flintridge Prep	4.03866026
Fountain Valley	3.0214355
Fullerton	2.31282744
Glendora	2.38473792
Irvine	3.34264216
JSerra	2.0177184
King, Martin Luther	1.99117814
La Canada	2.3841457
La Habra	4.28700594
Laguna Hills	2.364882
Millikan	3.036222
Murrieta Mesa	4.41952694
Pacifica/Garden Grove	2.53431882
Rancho Cucamonga	4.17841018
Royal	4.74048576
Sage Hill	3.11101484
San Juan Hills	5.62655702
San Marino	5.3365951
Santa Monica	5.40057126
Schurr	3.49082848
Sonora	4.28308242
Sunny Hills	4.17195264
Temescal Canyon	5.73648442
University	2.3563602
Upland	3.72599772

Xavier Prep	2.74859656
Yucaipa	4.9960853

Division 5	
Team	Power Ranking
Alemanya	1.06654342
Atascadero	-0.26937738
Beaumont	1.47952476
Brea Olinda	-1.31887528
Brentwood	-0.76691914
Buena	-2.4749574
Cabrillo/Lompoc	0.48235142
Cajon	1.36090088
California	1.2378747
Camarillo	-0.47607572
Canyon/Anaheim	1.56654748
Cate	-1.33136444
Chadwick	1.479971
Citrus Valley	-0.81488656
Cypress	1.50716406
Diamond Bar	1.57866564
El Dorado	-1.7355962
El Modena	-2.54758136
Elsinore	-0.42711774
Etiwanda	-1.55508556
Foothill Technology	0.73901
Glendale	-1.05031166
Great Oak	0.48411762
Hemet	-1.20977408
Kennedy/La Palma	-1.09115508
Los Altos/HH	-0.35784114
Marina	0.55951036
Mission Viejo	0.00412792
Monrovia	0.7568539
Nordhoff	0.63719698
North, JW	-1.02527888
Ocean View	1.91346662
Pasadena	-2.2641721
Poly/Long Beach	0.09531986

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PolyPasadena	-0.58871154
Roosevelt Eleanor	-0.4893726
Rowland	0.29960426
San Dimas	1.8710194
St John Bosco	0.28622912
Temecula Valley	0.29186174
Thousand Oaks	1.82565512
Trabuco Hills	-2.5937539
Villanova Prep	-0.82367972
Webb	-0.48092452

Ramona	-5.59446272
Redlands	-4.87521902
San Bernardino	-7.42932576
Savanna	-7.35431234
Shadow Hills	-4.33017014
St Francis	-3.16326966
Torrance	-6.5592583
Tustin	-2.77753798
Valencia/Placentia	-2.77743144
Valley View	-2.91890832
Warren	-6.9831463
West Torrance	-7.73786358
West Valley	-6.83010332
Western	-8.1869173
Whittier	-3.06797174
Wilson/Hacienda Heights	-4.0885446

Division 6	
Team	Power Ranking
Arroyo Valley	-7.67883516
Beverly Hills	-4.1522432
Blair	-6.38808936
Burbank	-3.13587066
Calabasas	-3.19191398
Centennial/Corona	-8.03151044
Chaffey	-3.16552348
Charter Oak	-4.9143955
Colony	-4.71867152
Crespi	-5.03738958
Culver City	-4.39745298
Downey	-3.82900384
El Rancho	-2.68106184
Estancia	-4.72309024
Fontana	-4.6692122
Garden Grove	-5.85392976
Hillcrest	-4.2243433
Katella	-3.99854396
La Mirada	-5.01722058
La Salle	-6.15215556
La Sierra	-2.59499754
Lakeside/Lake Elsinore	-6.10589222
Lakewood	-5.26437082
Los Amigos	-6.0108078
Norco	-6.14363994
Oxnard	-4.9089697
Pioneer	-6.5624997

Division 7	
Team	Power Ranking
Paramount	-8.23539854
Alhambra	-18.4315044
Artesia	-27.38622254
Baldwin Park	-8.92766992
Bell Gardens	-15.60549388
Bolsa Grande	-16.39908708
CabrilloLong Beach	-8.68350946
Canyon Springs	-10.92181738
Carter	-19.0530165
Cathedral	-9.14646208
Cathedral City	-16.86438528
Channel Islands	-20.00272376
Crean Lutheran	-15.6464097
Edgewood	-18.49953072
Eisenhower	-16.22789434
Gahr	-12.83633774
Godinez	-9.88573444
Granite HillsApple Valley	-8.24838866
Heritage	-10.78203644
Hueneme	-13.42459454

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Indian Springs	-20.81883572
Indio	-18.43060936
Jordan	-10.01432078
Jurupa Valley	-8.68377454
La Puente	-17.28193824
La QuintaWestminster	-9.69730894
Loara	-18.8181765
Lompoc	-9.2693657
Magnolia	-17.32349908
Mark Keppel	-13.66571628
Milken Community	-10.6535973
Montclair	-11.73055834
Moreno Valley	-14.7413391
Nogales	-12.26219868
Norte Vista	-21.10524802
Notre DameRiverside	-11.52323748
Ontario	-14.28927218
Orange	-18.15747532
Pacific	-13.97274656
PacificaOxnard	-8.8518572
Paloma Valley	-10.5888657
Perris	-15.2330856
Rancho Alamitos	-15.01328752
Rancho Mirage	-15.15907274
Rubidoux	-15.95766802
Saddleback	-13.38213358
San Gorgonio	-13.27229012
Santa Ana	-12.63251412
Santa Ana Valley	-13.26721148
Santa Fe	-16.11504802
Sierra Vista	-8.85392542
Summit	-12.89202802
Tahquitz	-10.43241576
West Covina	-13.03399768
Westminster	-16.83005518
Whitney	-17.30678334
Workman	-24.25978402

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