

December 2015 Seasonal Forecast

Barrier Assumptions

Last year's installation and removal dates will be assumed until further information is provided.

- The Middle River barrier is installed from March 31st, 2016 to November 20th, 2016
- The Old River at Tracy barrier is installed from April 3rd, 2016 to November 4th, 2016
- The Grant Line Canal barrier is installed from April 17th, 2016 to November 4th, 2016
- The HORB was not installed

Hydrology Assumptions

Two scenarios were run under the following Hydrologic assumptions:

50% Exceedence (90% Fall)

- Wetter hydrology (50%) based on the December 1st Water Supply Index (WSI) until September with historical hydrology (90%) in the fall months (Oct-Dec)
- Operating to meet SWRCB Water Rights Decision 1641 (D-1641) objectives along with moderate export restrictions required under the 2008 USFWS BiOp for Delta Smelt, 2009 NMFS BiOp for Salmonids and 2010 DFG Longfin Incidental Take Permit.
- Freeport flow varies from 7,000 cfs in October to 25,000 cfs in February
- Projects' exports including the Lower Yuba Accord Component #1 water to both the State Water Project and Central Valley Project.

90% Exceedence (90% Fall)

- Drier hydrology (90%) based on the December 1st Water Supply Index (WSI) until September with historical hydrology (90%) in the fall months (Oct-Dec)
- Operating to meet SWRCB Water Rights Decision 1641 (D-1641) objectives along with moderate export restrictions required under the 2008 USFWS BiOp for Delta Smelt, 2009 NMFS BiOp for Salmonids and 2010 DFG Longfin Incidental Take Permit.
- Freeport flow varies from 6,000 cfs in October to 9,000 cfs in April
- Projects' exports including the Lower Yuba Accord Component #1 water to the Central Valley Project.

Summary of Results

EC and Bromide at Check Structures and Silverwood Lake

- From December 2015 to July 2016, the EC and bromide outputs for the 50% and 90% exceedance range from approximately 400 us/cm to 600 us/cm. In the summer months, the EC and bromide begin to increase, with the values peaking around September and decreasing through the remainder of the forecast period.
- In the 90% exceedance case the pumping at Banks is 0 in July through September. The pumping increases in October but remains low for the rest of the year. This is most likely the cause of the improvement in water quality at Check 2 during this time period.

Summary of Results (continued)

EC and bromide at Old River Locations (Bacon Island and Highway 4)

- After August, inflows into the Delta begin to decrease which leads to a degradation in water quality.
- Inflows into the Delta increase around the month of October which leads to an improvement in water quality in the 50% exceedance case. In the 90% exceedance case, inflows and pumping offset each other which lead to the water quality remaining relatively flat.

EC and Bromide at Export Locations

- The trends at Banks and Jones are similar to what is seen at Bacon Island and Highway 4.
- A degradation in water quality can be seen after August in the 50% exceedance case, and the quality begins to improve around October.

Allocation Analysis for 2016 (TAF)
WY 2016 based on Historical Hydrology

| | 2015 Dec | 2016 | | | | | | | | | | | | Total (MAF) | Possible Table A % | |
|--|-------------|-----------|----------|-------------|-------------------|-------------------|-----------|------------------|------------------|-------------|---|---|------------|----------------|-----------------------|------------|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | |
| 25% Exceedence (90% Fall) Moderate OMR | | BN | | | SRI = 17.5 | | | SVI = 6.8 | | | Possible 2015 Table A Delivery = | | | 1.781 | 43% | |
| Oroville EOM Storage | 1062 | 1476 | 1992 | 2596 | 3025 | 3248 | 3209 | 2680 | 2194 | 1860 | 1731 | 1577 | 1481 | - | | |
| Feather R. release (avg. cfs) | 1330 | 1270 | 1270 | 1060 | 1060 | 1110 | 2180 | 8860 | 8720 | 7560 | 1770 | 1760 | 1770 | - | | |
| SWP Banks PP exports | 25 | 141 | 119 | 69 | 40 | 40 | 18 | 419 | 418 | 403 | 115 | 171 | 182 | 2.135 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 355 | 407 | 399 | 346 | 224 | 10 | 182 | 392 | 575 | 474 | 455 | 467 | - | | |
| SWP Contractor Deliveries | 80 | 48 | 61 | 67 | 80 | 151 | 218 | 234 | 198 | 187 | 187 | 161 | 138 | 1.730 | | |
| 50% Exceedence (90% Fall) D1641 | | | C | | | SRI = 12.8 | | | SVI = 5.3 | | | Possible 2015 Table A Delivery = | | | 2.039 | 49% |
| Oroville EOM Storage | 1062 | 1348 | 1724 | 2144 | 2383 | 2473 | 2399 | 1991 | 1537 | 1300 | 1197 | 1068 | 999 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 1330 | 810 | 1510 | 6330 | 7760 | 5190 | 1330 | 1340 | 1330 | - | | |
| SWP Banks PP exports | 25 | 411 | 405 | 198 | 18 | 40 | 29 | 289 | 370 | 258 | 89 | 134 | 147 | 2.388 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.070 | | |
| SWP San Luis EOM Storage | 265 | 618 | 948 | 1062 | 978 | 835 | 600 | 606 | 739 | 749 | 592 | 511 | 467 | - | | |
| SWP Contractor Deliveries | 80 | 55 | 69 | 75 | 90 | 172 | 250 | 271 | 229 | 216 | 216 | 186 | 160 | 1.988 | | |
| 50% Exceedence (90% Fall) Most OMR | | | C | | | SRI = 12.8 | | | SVI = 5.3 | | | Possible 2015 Table A Delivery = | | | 1.115 | 27% |
| Oroville EOM Storage | 1062 | 1348 | 1724 | 2144 | 2393 | 2483 | 2409 | 2001 | 1537 | 1300 | 1197 | 1068 | 999 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 1160 | 810 | 1510 | 6330 | 7920 | 5190 | 1330 | 1340 | 1330 | - | | |
| SWP Banks PP exports | 25 | 49 | 63 | 54 | 18 | 40 | 18 | 289 | 380 | 258 | 89 | 134 | 147 | 1.539 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 280 | 296 | 293 | 244 | 175 | 42 | 175 | 425 | 535 | 483 | 491 | 524 | - | | |
| SWP Contractor Deliveries | 80 | 31 | 41 | 48 | 55 | 97 | 134 | 140 | 119 | 112 | 111 | 95 | 82 | 1.065 | | |
| 50% Exceedence (90% Fall) Moderate OMR | | | C | | | SRI = 12.8 | | | SVI = 5.3 | | | Possible 2015 Table A Delivery = | | | 1.406 | 34% |
| Oroville EOM Storage | 1062 | 1348 | 1724 | 2144 | 2383 | 2473 | 2409 | 2001 | 1537 | 1300 | 1197 | 1068 | 999 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 1330 | 810 | 1340 | 6330 | 7920 | 5190 | 1330 | 1340 | 1330 | - | | |
| SWP Banks PP exports | 25 | 145 | 125 | 77 | 18 | 40 | 66 | 289 | 380 | 258 | 89 | 134 | 147 | 1.768 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 368 | 438 | 449 | 389 | 296 | 176 | 269 | 485 | 563 | 478 | 459 | 467 | - | | |
| SWP Contractor Deliveries | 80 | 38 | 50 | 56 | 66 | 120 | 171 | 182 | 154 | 145 | 144 | 124 | 106 | 1.356 | | |
| 50% Exceedence (90% Fall) Least OMR | | | C | | | SRI = 12.8 | | | SVI = 5.3 | | | Possible 2015 Table A Delivery = | | | 1.562 | 37% |
| Oroville EOM Storage | 1062 | 1348 | 1724 | 2144 | 2383 | 2473 | 2409 | 2001 | 1537 | 1300 | 1197 | 1068 | 999 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 1330 | 810 | 1340 | 6330 | 7920 | 5190 | 1330 | 1340 | 1330 | - | | |
| SWP Banks PP exports | 25 | 196 | 173 | 178 | 18 | 40 | 19 | 289 | 380 | 258 | 89 | 134 | 147 | 1.921 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 415 | 528 | 635 | 569 | 464 | 278 | 349 | 547 | 609 | 507 | 472 | 467 | - | | |
| SWP Contractor Deliveries | 80 | 42 | 54 | 61 | 72 | 133 | 190 | 204 | 172 | 162 | 162 | 139 | 120 | 1.512 | | |
| 75% Exceedence (90% Fall) Moderate OMR | | | C | | | SRI = 8.9 | | | SVI = 4.0 | | | Possible 2015 Table A Delivery = | | | 0.431 | 10% |
| Oroville EOM Storage | 1006 | 1139 | 1367 | 1647 | 1695 | 1665 | 1534 | 1351 | 1214 | 1182 | 1103 | 995 | 950 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 2120 | 1020 | 1360 | 1940 | 1810 | 1410 | 960 | 970 | 940 | - | | |
| SWP Banks PP exports | 25 | 137 | 113 | 93 | 18 | 18 | 18 | 18 | 18 | 18 | 47 | 109 | 123 | 0.730 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 310 | 309 | 308 | 274 | 254 | 201 | 120 | 76 | 55 | 79 | 167 | 268 | - | | |
| SWP Contractor Deliveries | 80 | 89 | 107 | 85 | 39 | 25 | 54 | 84 | 48 | 28 | 19 | 19 | 15 | 0.612 | | |
| 90% Exceedence (90% Fall) D1641 | | | C | | | SRI = 6.5 | | | SVI = 3.3 | | | Possible 2015 Table A Delivery = | | | 0.228 | 5% |
| Oroville EOM Storage | 950 | 1001 | 1130 | 1299 | 1274 | 1184 | 1021 | 851 | 824 | 812 | 813 | 775 | 762 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 2940 | 1630 | 1800 | 2760 | 2000 | 1310 | 1110 | 970 | 940 | - | | |
| SWP Banks PP exports | 25 | 190 | 105 | 18 | 18 | 18 | 18 | 0 | 0 | 0 | 18 | 18 | 18 | 0.421 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 402 | 440 | 389 | 358 | 341 | 304 | 233 | 185 | 152 | 151 | 152 | 152 | - | | |
| SWP Contractor Deliveries | 80 | 50 | 61 | 59 | 36 | 22 | 36 | 54 | 33 | 22 | 14 | 13 | 10 | 0.410 | | |
| 90% Exceedence (90% Fall) Most OMR | | | C | | | SRI = 6.5 | | | SVI = 3.3 | | | Possible 2015 Table A Delivery = | | | 0.027 | 1% |
| Oroville EOM Storage | 950 | 1001 | 1130 | 1299 | 1274 | 1185 | 1021 | 852 | 824 | 813 | 813 | 776 | 762 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 2940 | 1610 | 1820 | 2760 | 2000 | 1310 | 1110 | 970 | 940 | - | | |
| SWP Banks PP exports | 25 | 57 | 46 | 18 | 18 | 18 | 18 | 0 | 0 | 0 | 18 | 18 | 18 | 0.229 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 308 | 333 | 308 | 279 | 265 | 244 | 201 | 168 | 139 | 142 | 147 | 152 | - | | |
| SWP Contractor Deliveries | 80 | 11 | 15 | 34 | 34 | 19 | 19 | 23 | 19 | 15 | 8 | 7 | 5 | 0.208 | | |
| 90% Exceedence (90% Fall) Moderate OMR | | | C | | | SRI = 6.5 | | | SVI = 3.3 | | | Possible 2015 Table A Delivery = | | | 0.173 | 4% |
| Oroville EOM Storage | 950 | 1001 | 1130 | 1299 | 1274 | 1184 | 1021 | 851 | 824 | 812 | 813 | 775 | 762 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 2940 | 1630 | 1800 | 2760 | 2000 | 1310 | 1110 | 970 | 940 | - | | |
| SWP Banks PP exports | 25 | 137 | 105 | 18 | 18 | 18 | 18 | 0 | 0 | 0 | 18 | 18 | 18 | 0.368 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 359 | 410 | 367 | 336 | 320 | 288 | 224 | 180 | 148 | 148 | 150 | 152 | - | | |
| SWP Contractor Deliveries | 80 | 39 | 48 | 52 | 36 | 21 | 31 | 45 | 29 | 20 | 12 | 11 | 8 | 0.354 | | |
| 90% Exceedence (90% Fall) Least OMR | | | C | | | SRI = 6.5 | | | SVI = 3.3 | | | Possible 2015 Table A Delivery = | | | 0.226 | 5% |
| Oroville EOM Storage | 950 | 1001 | 1130 | 1299 | 1274 | 1184 | 1021 | 851 | 824 | 812 | 813 | 775 | 762 | - | | |
| Feather R. release (avg. cfs) | 1330 | 960 | 970 | 810 | 2940 | 1630 | 1800 | 2760 | 2000 | 1310 | 1110 | 970 | 940 | - | | |
| SWP Banks PP exports | 25 | 188 | 105 | 18 | 18 | 18 | 18 | 0 | 0 | 0 | 18 | 18 | 18 | 0.419 | | |
| <i>Potential South of Delta Art. 21 Water Avail.</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | | |
| SWP San Luis EOM Storage | 265 | 400 | 439 | 388 | 357 | 340 | 304 | 233 | 185 | 151 | 151 | 152 | 152 | - | | |
| SWP Contractor Deliveries | 80 | 49 | 60 | 59 | 36 | 22 | 36 | 53 | 33 | 21 | 14 | 13 | 10 | 0.407 | | |

Assumptions for 2016 Allocation Analysis

Notes:

- Deliveries are based on SWPAO's 2016 initial delivery files. The 5% delivery pattern is used for all studies except the 25% and 50% studies which use the 50% delivery pattern.
- All studies include the 100% FRSA delivery pattern except for the 90% studies which use the 50% FRSA delivery pattern.
- Probability of exceedence is based on December 1st WSI.
- Availability or delivery of the Lower Yuba River Accord Component 1 water is assumed in all exceedences and split evenly between the SWP & CVP.
- Year types are from Sacramento Valley 40-30-30 index and San Joaquin Valley 60-20-20 index classifications.
- When Biological Opinions' (BiOp) impacts occur at the export facilities, SWP and CVP will share available water evenly under the BiOp restrictions.

Estimated Delivery in Details

| | (1) | (2) | (3) | (4) | (1+3-2) | (1+2+4) | (1+3+4) |
|--|-------------|-----------|---------------|-----------------|-----------------|---------------|-------------------------------|
| | '16 Table A | Txfr Adj | '16-'17 ANTCO | '16 CO & Others | 2016 Allocation | 2016 Delivery | Total Water Available for '16 |
| 25% Exceedence (90% Fall) Moderate OMR | 1.598 maf | 0.000 maf | 0.183 maf | 0.132 maf | 1.781 maf | 1.730 maf | 1.913 maf |
| 50% Exceedence (90% Fall) D1641 | 1.856 maf | 0.000 maf | 0.183 maf | 0.132 maf | 2.039 maf | 1.988 maf | 2.171 maf |
| 50% Exceedence (90% Fall) Most OMR | 0.933 maf | 0.000 maf | 0.183 maf | 0.132 maf | 1.115 maf | 1.065 maf | 1.247 maf |
| 50% Exceedence (90% Fall) Moderate OMR | 1.224 maf | 0.000 maf | 0.183 maf | 0.132 maf | 1.406 maf | 1.356 maf | 1.538 maf |
| 50% Exceedence (90% Fall) Least OMR | 1.380 maf | 0.000 maf | 0.183 maf | 0.132 maf | 1.562 maf | 1.512 maf | 1.694 maf |
| 75% Exceedence (90% Fall) Moderate OMR | 0.423 maf | 0.000 maf | 0.008 maf | 0.189 maf | 0.431 maf | 0.612 maf | 0.620 maf |
| 90% Exceedence (90% Fall) D1641 | 0.221 maf | 0.000 maf | 0.008 maf | 0.189 maf | 0.228 maf | 0.410 maf | 0.417 maf |
| 90% Exceedence (90% Fall) Most OMR | 0.019 maf | 0.000 maf | 0.008 maf | 0.189 maf | 0.027 maf | 0.208 maf | 0.216 maf |
| 90% Exceedence (90% Fall) Moderate OMR | 0.165 maf | 0.000 maf | 0.008 maf | 0.189 maf | 0.173 maf | 0.354 maf | 0.362 maf |
| 90% Exceedence (90% Fall) Least OMR | 0.218 maf | 0.000 maf | 0.008 maf | 0.189 maf | 0.226 maf | 0.407 maf | 0.415 maf |

Reservoir Targets

- Lake Oroville storage target = 1.300 MAF + "F" x (1.057 MAF - 1.300 MAF) on September 30; where "F" = 1/2 x Possible Table A %.

| Exceedence | Possible Table A | Storage Target |
|--|------------------|----------------|
| 25% Exceedence (90% Fall) Moderate OMR | 43% | 1.300 MAF |
| 50% Exceedence (90% Fall) D1641 | 49% | 1.300 MAF |
| 50% Exceedence (90% Fall) Most OMR | 27% | 1.300 MAF |
| 50% Exceedence (90% Fall) Moderate OMR | 34% | 1.300 MAF |
| 50% Exceedence (90% Fall) Least OMR | 37% | 1.300 MAF |
| 75% Exceedence (90% Fall) Moderate OMR | 10% | 1.300 MAF |
| 90% Exceedence (90% Fall) D1641 | 5% | 1.300 MAF |
| 90% Exceedence (90% Fall) Most OMR | 1% | 1.300 MAF |
| 90% Exceedence (90% Fall) Moderate OMR | 4% | 1.300 MAF |
| 90% Exceedence (90% Fall) Least OMR | 5% | 1.300 MAF |

- SWP San Luis storage targets for 2016

| Exceedence | Deadpool = | Total |
|------------|------------|---------|
| All | 42 taf | 219 taf |

- Fall Storage Level

>>>> for the 25% and 50% Exceedences

| | Deadpool | Unscheduled CO & Backed up Water | Required Storage |
|---------------|----------|-------------------------------------|--|
| Oct-16 | 42 taf | 142 taf | 184 >>> 1/3 of '16-'17 ANTCO is available in Oct. '16 |
| Nov-16 | 42 taf | 283 taf | 325 >>> 2/3 of '16-'17 ANTCO is available in Nov. '16 |
| Dec-16 | 42 taf | 425 taf | 467 >>> 100% of '16-'17 ANTCO is available in Dec. '16 |

- Fall Storage Level

>>>> for the 75%, and 90% Exceedences

| | Deadpool | Unscheduled CO & Backed up Water | Required Storage |
|---------------|----------|-------------------------------------|--|
| Oct-16 | 42 taf | 37 taf | 79 >>> 1/3 of '16-'17 ANTCO is available in Oct. '16 |
| Nov-16 | 42 taf | 74 taf | 116 >>> 2/3 of '16-'17 ANTCO is available in Nov. '16 |
| Dec-16 | 42 taf | 110 taf | 152 >>> 100% of '16-'17 ANTCO is available in Dec. '16 |

OMR Assumptions

| | Most Restrictive OMR | Moderate OMR | Least Restrictive OMR |
|----------------|--|--------------|-----------------------|
| January | -1250 | -3500 | -5000 |
| February | -1250 | -3500 | -5000 |
| March | -1250 | -2000 | -5000 |
| April | SJL Critical WY 1:1, Dry WY 2:1, BN WY 3:1, ANW WY 4:1 | | |
| May | SJL Critical WY 1:1, Dry WY 2:1, BN WY 3:1, ANW WY 4:1 | | |
| June | -1250 | -2500 | -5000 |
| December 1-17 | -2000 | | |
| December 18-31 | -1250 | -2000 | -5000 |

* Targets in accordance with the USFWS Delta Smelt BO, NMFS Salmon BO and the Longfin Incidental Take Permit.