Sacramento - San Joaquin Delta Daily Data Atlas of
Mean Daily Electrical Conductivity,
Estimated Delta Outflow,
Location of Salinity Gradient and
Estimated X2 Position
for Water Years 1968 to 1993

Russ Brown
Shawn Yotter
Jones & Stokes Associates, Inc.
June 1994
(916) 737-3000
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1968

FIGURE 68A
Port Chicago (64 km)
Benicia (56 km)
Pittsburg (77 km)
Collinsville (81 km)
Emmaton (92 km)

LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1968

FIGURE 68B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1969

FIGURE 69A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1969

FIGURE 69B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1970
FIGURE 70A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1970

FIGURE 70B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1971
FIGURE 71A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1971

FIGURE 71B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1972

FIGURE 72A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1972

FIGURE 72B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1973

FIGURE 73A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1973

FIGURE 73B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1974
FIGURE 74A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1974

FIGURE 74B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1975
FIGURE 75A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1975

FIGURE 75B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1976
FIGURE 76A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1976

FIGURE 76B
Delta Outflow
Benicia (56 km)
Port Chicago (64 km)
Pittsburg (77 km)
Collinsville (81 km)
Emmaton (92 km)

DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1977
FIGURE 77A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1977

FIGURE 77B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1978

FIGURE 78A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1978

FIGURE 78B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1979

FIGURE 79A
Port Chicago
Benicia (56 km)

LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1979
FIGURE 79B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1980
FIGURE 80A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1980

FIGURE 80B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1981

FIGURE 81A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1981

FIGURE 81B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1982

FIGURE 82A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1982

FIGURE 82B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1983

FIGURE 83A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1983

FIGURE 83B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1984
FIGURE 84A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1984

FIGURE 84B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1985
FIGURE 85A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1985

FIGURE 85B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1986

FIGURE 86A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1986
FIGURE 86B
Delta Outflow

Benicia (56 km)

Port Chicago (64 km)

Pittsburg (77 km)

Collinsville (81 km)

Emmaton (92 km)

DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1987
FIGURE 87A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1987

FIGURE 87B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1988
FIGURE 88A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1988

FIGURE 88B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1989

FIGURE 89A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1989
FIGURE 89B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1990
FIGURE 90A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1990
FIGURE 90B
DAILY AVERAGE EC AT SELECTED STATIONS
AND DELTA OUTFLOW FOR 1991
FIGURE 91A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1991

FIGURE 91B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1992

FIGURE 92A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1992

FIGURE 92B
DAILY AVERAGE EC AT SELECTED STATIONS AND DELTA OUTFLOW FOR 1993
FIGURE 93A
LOCATION OF SALINITY GRADIENT INTERPOLATED FROM DAILY AVERAGE EC MEASUREMENTS AND ESTIMATED X2 POSITION FOR 1993

FIGURE 93B
## Estimated Estuarine Habitat Area Upstream of Mean Daily Position of 3 mS/cm EC

<table>
<thead>
<tr>
<th>Position of 3 mS/cm (km)</th>
<th>Estimated Habitat Width (km)</th>
<th>Estimated Upstream Habitat (km²)</th>
<th>Estimated Delta Outflow to Maintain Position¹ (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>1.50</td>
<td>117.25</td>
<td>100,000</td>
</tr>
<tr>
<td>51</td>
<td>1.50</td>
<td>115.75</td>
<td>91,825</td>
</tr>
<tr>
<td>52</td>
<td>1.75</td>
<td>114.25</td>
<td>84,319</td>
</tr>
<tr>
<td>53</td>
<td>2.00</td>
<td>112.50</td>
<td>77,426</td>
</tr>
<tr>
<td>54</td>
<td>2.00</td>
<td>110.50</td>
<td>71,097</td>
</tr>
<tr>
<td>55</td>
<td>1.75</td>
<td>108.50</td>
<td>65,285</td>
</tr>
<tr>
<td>56</td>
<td>1.50</td>
<td>106.75</td>
<td>59,948</td>
</tr>
<tr>
<td>57</td>
<td>2.25</td>
<td>105.25</td>
<td>55,048</td>
</tr>
<tr>
<td>58</td>
<td>3.00</td>
<td>103.00</td>
<td>50,548</td>
</tr>
<tr>
<td>59</td>
<td>3.50</td>
<td>100.00</td>
<td>46,416</td>
</tr>
<tr>
<td>60</td>
<td>4.00</td>
<td>96.50</td>
<td>42,622</td>
</tr>
<tr>
<td>61</td>
<td>4.25</td>
<td>92.50</td>
<td>39,137</td>
</tr>
<tr>
<td>62</td>
<td>5.50</td>
<td>88.25</td>
<td>35,938</td>
</tr>
<tr>
<td>63</td>
<td>8.00</td>
<td>82.75</td>
<td>33,000</td>
</tr>
<tr>
<td>64</td>
<td>6.50</td>
<td>74.75</td>
<td>30,303</td>
</tr>
<tr>
<td>65</td>
<td>7.25</td>
<td>68.25</td>
<td>27,826</td>
</tr>
<tr>
<td>66</td>
<td>6.00</td>
<td>61.00</td>
<td>25,551</td>
</tr>
<tr>
<td>67</td>
<td>3.00</td>
<td>55.00</td>
<td>23,462</td>
</tr>
<tr>
<td>68</td>
<td>3.50</td>
<td>52.00</td>
<td>21,544</td>
</tr>
<tr>
<td>69</td>
<td>3.00</td>
<td>48.50</td>
<td>19,783</td>
</tr>
<tr>
<td>70</td>
<td>3.00</td>
<td>45.50</td>
<td>18,166</td>
</tr>
<tr>
<td>71</td>
<td>3.25</td>
<td>42.50</td>
<td>16,681</td>
</tr>
<tr>
<td>72</td>
<td>4.00</td>
<td>39.25</td>
<td>15,317</td>
</tr>
<tr>
<td>73</td>
<td>4.00</td>
<td>35.25</td>
<td>14,065</td>
</tr>
<tr>
<td>74</td>
<td>3.50</td>
<td>31.25</td>
<td>12,915</td>
</tr>
<tr>
<td>75</td>
<td>1.00</td>
<td>27.75</td>
<td>11,860</td>
</tr>
<tr>
<td>76</td>
<td>1.25</td>
<td>26.75</td>
<td>10,890</td>
</tr>
<tr>
<td>77</td>
<td>1.25</td>
<td>25.50</td>
<td>10,000</td>
</tr>
<tr>
<td>78</td>
<td>1.50</td>
<td>24.25</td>
<td>9,183</td>
</tr>
<tr>
<td>79</td>
<td>1.75</td>
<td>22.75</td>
<td>8,432</td>
</tr>
<tr>
<td>80</td>
<td>1.50</td>
<td>21.00</td>
<td>7,743</td>
</tr>
<tr>
<td>81</td>
<td>1.50</td>
<td>19.50</td>
<td>7,110</td>
</tr>
<tr>
<td>82</td>
<td>2.50</td>
<td>18.00</td>
<td>6,529</td>
</tr>
<tr>
<td>83</td>
<td>1.00</td>
<td>15.50</td>
<td>5,095</td>
</tr>
<tr>
<td>84</td>
<td>1.00</td>
<td>14.50</td>
<td>5,505</td>
</tr>
<tr>
<td>85</td>
<td>1.00</td>
<td>13.50</td>
<td>5,055</td>
</tr>
<tr>
<td>86</td>
<td>1.00</td>
<td>12.50</td>
<td>4,642</td>
</tr>
<tr>
<td>87</td>
<td>0.75</td>
<td>11.50</td>
<td>4,262</td>
</tr>
<tr>
<td>88</td>
<td>1.00</td>
<td>10.75</td>
<td>3,914</td>
</tr>
<tr>
<td>89</td>
<td>0.75</td>
<td>9.75</td>
<td>3,594</td>
</tr>
<tr>
<td>90</td>
<td>0.75</td>
<td>9.00</td>
<td>3,300</td>
</tr>
<tr>
<td>91</td>
<td>0.75</td>
<td>8.25</td>
<td>3,030</td>
</tr>
<tr>
<td>92</td>
<td>0.75</td>
<td>7.50</td>
<td>2,783</td>
</tr>
<tr>
<td>93</td>
<td>0.75</td>
<td>6.75</td>
<td>2,555</td>
</tr>
<tr>
<td>94</td>
<td>1.00</td>
<td>6.00</td>
<td>2,346</td>
</tr>
<tr>
<td>95</td>
<td>0.75</td>
<td>5.00</td>
<td>2,154</td>
</tr>
<tr>
<td>96</td>
<td>1.00</td>
<td>4.25</td>
<td>1,978</td>
</tr>
<tr>
<td>97</td>
<td>1.00</td>
<td>3.25</td>
<td>1,817</td>
</tr>
<tr>
<td>98</td>
<td>0.75</td>
<td>2.25</td>
<td>1,668</td>
</tr>
<tr>
<td>99</td>
<td>0.75</td>
<td>1.50</td>
<td>1,532</td>
</tr>
<tr>
<td>100</td>
<td>0.75</td>
<td>0.75</td>
<td>1,407</td>
</tr>
</tbody>
</table>

¹Using Kimmerer and Monismith Steady State X2 equation.
ESTUARINE HABITAT AREA UPSTREAM OF MEAN DAILY POSITION OF 3 mS/cm EC