Appendix HYDRO-2
Playa Evaporation Assessment

PLAYA EVAPORATION ASSESSMENT

Hydrology / Water Quality

An analysis was conducted to estimate evapotranspiration (ET) demand for the natural communities mapped along the exposed Salton Sea playa that are fed by IID drain flows. Species dominance within each natural community was used to create representative ET values. ET demand in AF were calculated for several representative areas of the exposed playa where drain data was available (**Figure H2-1**). Six land cover types were not treated as channel-fed vegetation and were excluded from the ET analysis: these were agriculture, barren land, developed land, disturbed land, salt-panne, and the unvegetated channel/ditch beds. Evapotranspiration was calculated by using meteorological data to estimate the evapotranspiration rate for a reference cover, E_{to}, (an irrigated grass surface) and applying a crop adjustment factor, K_v, to yield an estimated rate for the target vegetation type, E_{tv}. Crop adjustment factors have been calculated for a range of commercial crops and some native vegetation types (e.g., cattail marsh and willow-cottonwood forest), but were not available for all the covers present in the Action Area. Where no crop adjustment factors were available, a comparable vegetation type was substituted. For example, Tamarisk Thickets were modeled as large stand riparian, while Iodine Bush-Bush Seepweed Scrub were modeled as large stand permanent wetlands (**Table H2-1**). Monthly and annual reference cover E_{t0} rates were obtained from the California Irrigation Management Information System (CIMIS) meteorological station 41 at Calipatria, in the center of the Action Area and transformed to average ET in AF for each vegetation type in the Action Area (**Table H2-2**). Multiplying the average ET in AF for each vegetation type by the acreage of each mapped natural community polygon yields monthly estimate of ET demand (**Table H2-3**).

Th the drain data consisted of mean monthly flows in AF (**see Appendix X**) in 24 of th3 29 IID drains with flow recorders that flow to the Salton Sea. Five aggregated natural community polygons were created (groups): three locations on the west shore where spatially adjacent natural communities were clearly supplied drain water from a single source were each aggregated, and two locations on the east shore where spatial adjacent natural communities were fed by multiple drains. In the latter case, monthly drain data were also aggregated for the analysis.

The analysis compared estimated ET demands of the existing mapped vegetation with the volume of flows from the drains, attempting to compare water demand with water availability. The analysis assumes that ET values are evenly distributed within each vegetation polygon. Actual conditions show this to be a conservative assumption because most polygons show a heterogenous mix of healthy and stressed vegetation. Similarly, the analysis assumes that the flow application is evenly distributed within the vegetation polygon. This is a conservative assumption because aerial images show that flows are directed in channels that meander and change over time, conveying some flow directly to the Sea.

Monthly and annual ET demand and drain flow volumes were compared under existing conditions to the Proposed Action conditions (**Table H2-4** and **Table H2-5**). The comparison shows that under existing conditions, there are some months in three of the five vegetation drain groups where ET demand is greater than the supply of drain water (values in red shown in Table H2-4) In the month of June, the East Drains, Elmore Lake Spill to San Felipe Wash, and the Trifolium 22 Drain groups show a deficit of drain flows. Elmore Lake Spill to San Felipe Wash show a deficit in June and July. Moreover, in the east drains the deficit spanned May through November. However, on an annual basis all the groups show a surplus of drain flows. A similar pattern for the water balance was found under the Proposed Action conditions (Table H2-6), except that the deficit during the summer months was greater. In the East Drains the span of months with a deficit was the same as for existing conditions. In addition, the span of deficit in the Pumice Drain and the Trifolium 22 Drain included the month of July. However, overall, there was not a deficit of drain flows on an annual basis due to the Proposed Action.

TABLE H2-1
NATURAL COMMUNITIES AND LAND COVER TYPES ALONG THE SALTON SEA IN THE IID ACTION AREA

Natural Community	ET Vegetation Type
Arrow Weed-Bush Seepweed Thickets/Scrub	Large stand riparian
Arrow Weed-BushSeepweed Thickets/Scrub	large stand riparian
Bush Seepweed Scrub	large stand permanent wetland
Cattail Marsh	large stand permanent wetland
Cattail-Common Reed Marsh	large stand permanent wetland
Common Reed Marsh	large stand permanent wetland
Iodine Bush Scrub	large stand riparian
Iodine Bush-Bush Seepweed Scrub	large stand permanent wetland
Iodine Bush-Cattail Scrub/Marsh	large stand permanent wetland
Tamarisk Thickets	large stand riparian
Tamarisk-Allscale Thickets/Scrub	large stand riparian
Tamarisk-Arrow Weed Thickets	large stand riparian
Tamarisk-Arrow Weed-Bush Seepweed Thickets/Scrub	large stand permanent wetland
Tamarisk-Arrow Weed-Iodine Bush Thickets/Scrub	large stand riparian
Tamarisk-Arrow Weed-Quailbush Thickets/Scrub	large stand riparian
Tamarisk-Bush Seepweed Thickets/Scrub	large stand permanent wetland
Tamarisk-Cattail Thickets/Marsh	large stand permanent wetland
Tamarisk-Cattail-Common Reed Thickets/Marsh	large stand permanent wetland
Tamarisk Common Reed Thickets/Marsh	large stand permanent wetland
Tamarisk-Iodine Bush Thickets/Scrub	large stand riparian
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	large stand permanent wetland
Tamarisk-Iodine Bush-Common Reed Thickets/Scrub/Marsh	large stand permanent wetland
Tamarisk-Iodine Bush-Quailbush Thickets/Scrub	large stand riparian
Tamarisk-Quailbush Thickets/Scrub	large stand riparian
Tamarisk-Quailbush-Cattail Thickets/Scrub/Marsh	large stand permanent wetland
Tamarisk-Quailbush-Common Reed Thickets/Scrub/Marsh	large stand permanent wetland

SOURCE: ESA

TABLE H2-2
MONTHLY AVERAGE EVAPOTRANSPIRATION (AF) FOR REFERENCE VEGETATION TYPES IN THE IID ACTION AREA.

ET Vegetation type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Monthly Mean Evapotranspiration (AF)											
Large stand permanent wetland	0.7	0.7	0.8	1	1.05	1.2	1.2	1.2	1.05	1.1	1	0.75
Cottonwood	0.81	0.72	0.61	0.66	0.82	0.94	1.02	1.02	1.07	1.08	0.88	0.89

TABLE H2-3
VEGETATION TYPE, ACREAGE, DRAIN GROUP AND MONTHLY EVAPOTRANSPIRATION FOR MAPPED VEGETATION POLYGONS IN THE IID ACTION AREA.

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				Evapotranspiration (AF)											
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	0.5	East Drains	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.1	0.1
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	19.8	East Drains	2.9	3.9	7.1	11.5	14.7	17.8	18.2	16.7	11.7	9.1	5.1	2.8
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	23.3	East Drains	4.0	4.8	6.4	9.0	13.5	16.5	18.2	16.7	14.1	10.6	5.3	3.9
Iodine Bush-Cattail Scrub/Marsh	Large stand permanent wetland	1.9	East Drains	0.3	0.4	0.7	1.1	1.4	1.7	1.8	1.6	1.1	0.9	0.5	0.3
Iodine Bush Scrub	cottonwood	2.0	East Drains	0.3	0.4	0.6	0.8	1.2	1.4	1.6	1.5	1.2	0.9	0.5	0.3
Tamarisk Thickets	cottonwood	0.6	East Drains	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.3	0.1	0.1
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	252.3	East Drains	43.4	51.5	69.1	97.0	146.5	178.4	196.8	180.7	152.2	114.4	57.1	42.1
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	0.9	East Drains	0.1	0.2	0.3	0.5	0.7	0.8	0.8	0.8	0.5	0.4	0.2	0.1
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	1.6	East Drains	0.2	0.3	0.6	0.9	1.2	1.5	1.5	1.4	1.0	0.7	0.4	0.2
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	36.2	East Drains	6.2	7.4	9.9	13.9	21.0	25.6	28.3	25.9	21.8	16.4	8.2	6.0
Tamarisk Thickets	cottonwood	424.3	East Drains	72.9	86.7	116.3	163.0	246.4	299.9	330.9	303.8	255.9	192.3	96.0	70.8
Iodine Bush Scrub	cottonwood	12.7	East Drains	2.2	2.6	3.5	4.9	7.4	9.0	9.9	9.1	7.7	5.8	2.9	2.1
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	63.0	East Drains	10.8	12.9	17.3	24.2	36.6	44.5	49.1	45.1	38.0	28.5	14.2	10.5
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	143.7	East Drains	21.3	28.5	51.7	83.7	106.9	129.7	131.9	121.1	85.1	66.4	37.0	20.2

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	2.6	East Drains	0.4	0.5	0.9	1.5	1.9	2.4	2.4	2.2	1.6	1.2	0.7	0.4
Cattail Marsh	Large stand permanent wetland	1.1	East Drains	0.2	0.2	0.4	0.6	0.8	1.0	1.0	0.9	0.6	0.5	0.3	0.2
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	261.5	East Drains	38.8	51.9	94.0	152.3	194.5	236.0	240.0	220.3	154.8	120.8	67.2	36.8
Tamarisk Thickets	cottonwood	10.3	East Drains	1.8	2.1	2.8	4.0	6.0	7.3	8.1	7.4	6.2	4.7	2.3	1.7
Tamarisk Thickets	cottonwood	12.0	East Drains	2.1	2.5	3.3	4.6	7.0	8.5	9.4	8.6	7.3	5.5	2.7	2.0
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	0.6	East Drains	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.1	0.1
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	1.4	East Drains	0.2	0.3	0.5	0.8	1.0	1.2	1.3	1.2	0.8	0.6	0.4	0.2
Iodine Bush Scrub	cottonwood	4.6	East Drains	0.8	0.9	1.3	1.8	2.7	3.3	3.6	3.3	2.8	2.1	1.0	0.8
Iodine Bush Scrub	cottonwood	24.5	East Drains	4.2	5.0	6.7	9.4	14.2	17.3	19.1	17.5	14.8	11.1	5.5	4.1
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	13.7	East Drains	2.4	2.8	3.8	5.3	8.0	9.7	10.7	9.8	8.3	6.2	3.1	2.3
Tamarisk Thickets	cottonwood	2.6	East Drains	0.5	0.5	0.7	1.0	1.5	1.9	2.1	1.9	1.6	1.2	0.6	0.4
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	823.8	East Drains	141.6	168.3	225.8	316.6	478.4	582.3	642.6	589.8	496.8	373.5	186.4	137.5
Tamarisk Thickets	cottonwood	0.8	East Drains	0.1	0.2	0.2	0.3	0.5	0.6	0.6	0.6	0.5	0.4	0.2	0.1
Tamarisk-Quailbush Thickets/Scrub	cottonwood	21.9	Pumice Drain	3.8	4.5	6.0	8.4	12.7	15.5	17.1	15.7	13.2	9.9	5.0	3.7
Tamarisk Thickets	cottonwood	18.5	Pumice Drain	3.2	3.8	5.1	7.1	10.7	13.0	14.4	13.2	11.1	8.4	4.2	3.1
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	7.2	Trifolium 23 Drain	1.1	1.4	2.6	4.2	5.3	6.5	6.6	6.0	4.2	3.3	1.8	1.0
Cattail-Common Reed Marsh	Large stand permanent wetland	1.7	Trifolium 23 Drain	0.3	0.3	0.6	1.0	1.3	1.5	1.6	1.4	1.0	0.8	0.4	0.2

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	3.8	Elmore Lake Spill to San Felipe Wash	0.6	0.8	1.4	2.2	2.8	3.4	3.5	3.2	2.2	1.8	1.0	0.5
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	0.9	Elmore Lake Spill to San Felipe Wash	0.1	0.2	0.3	0.5	0.7	0.8	0.8	0.8	0.5	0.4	0.2	0.1
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	1.0	Elmore Lake Spill to San Felipe Wash	0.1	0.2	0.4	0.6	0.7	0.9	0.9	0.8	0.6	0.5	0.3	0.1
Tamarisk-Allscale Thickets/Scrub	cottonwood	0.7	Trifolium 22 Drain	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.5	0.4	0.3	0.2	0.1
Cattail-Common Reed Marsh	Large stand permanent wetland	56.5	Trifolium 22 Drain	8.4	11.2	20.3	32.9	42.0	51.0	51.9	47.6	33.4	26.1	14.5	7.9
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	211.4	East Drains	31.4	42.0	76.0	123.1	157.2	190.7	194.0	178.0	125.1	97.6	54.4	29.7
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	217.3	East Drains	32.3	43.2	78.1	126.5	161.6	196.1	199.4	183.0	128.6	100.3	55.9	30.6
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	33.9	East Drains	5.8	6.9	9.3	13.0	19.7	24.0	26.5	24.3	20.5	15.4	7.7	5.7
Tamarisk-Iodine Bush-Quailbush Thickets/Scrub	cottonwood	96.2	East Drains	16.5	19.7	26.4	37.0	55.9	68.0	75.1	68.9	58.0	43.6	21.8	16.1
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	108.2	East Drains	18.6	22.1	29.6	41.6	62.8	76.5	84.4	77.4	65.2	49.0	24.5	18.0
Iodine Bush-Cattail Scrub/Marsh	Large stand permanent wetland	50.2	East Drains	7.5	10.0	18.0	29.2	37.3	45.3	46.1	42.3	29.7	23.2	12.9	7.1
Tamarisk Thickets	cottonwood	56.9	East Drains	9.8	11.6	15.6	21.9	33.1	40.2	44.4	40.8	34.3	25.8	12.9	9.5
Tamarisk-Iodine Bush-Common Reed Thickets/Scrub/Marsh	Large stand permanent wetland	122.2	East Drains	18.2	24.3	43.9	71.2	90.9	110.3	112.2	103.0	72.3	56.4	31.4	17.2
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	9.1	East Drains	1.4	1.8	3.3	5.3	6.8	8.2	8.3	7.7	5.4	4.2	2.3	1.3

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	124.1	East Drains	18.4	24.6	44.6	72.2	92.3	112.0	113.8	104.5	73.4	57.3	31.9	17.4
Tamarisk Thickets	cottonwood	60.7	East Drains	10.4	12.4	16.6	23.3	35.2	42.9	47.3	43.5	36.6	27.5	13.7	10.1
Tamarisk Thickets	cottonwood	24.0	East Drains	4.1	4.9	6.6	9.2	14.0	17.0	18.7	17.2	14.5	10.9	5.4	4.0
Iodine Bush Scrub	cottonwood	91.8	East Drains	15.8	18.8	25.2	35.3	53.3	64.9	71.6	65.8	55.4	41.6	20.8	15.3
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	268.8	East Drains	46.2	54.9	73.7	103.3	156.1	190.0	209.7	192.5	162.1	121.9	60.8	44.9
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	90.3	East Drains	13.4	17.9	32.4	52.6	67.1	81.5	82.8	76.0	53.4	41.7	23.2	12.7
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	36.5	East Drains	5.4	7.2	13.1	21.2	27.1	32.9	33.5	30.7	21.6	16.8	9.4	5.1
Tamarisk Thickets	cottonwood	63.0	East Drains	10.8	12.9	17.3	24.2	36.6	44.6	49.2	45.1	38.0	28.6	14.3	10.5
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	3.2	East Drains	0.6	0.7	0.9	1.2	1.9	2.3	2.5	2.3	1.9	1.5	0.7	0.5
Tamarisk Thickets	cottonwood	27.5	Pumice Drain	4.7	5.6	7.5	10.6	16.0	19.4	21.5	19.7	16.6	12.5	6.2	4.6
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	138.7	Pumice Drain	20.6	27.5	49.9	80.8	103.2	125.2	127.3	116.8	82.1	64.1	35.7	19.5
Tamarisk-Iodine Bush-Common Reed Thickets/Scrub/Marsh	Large stand permanent wetland	29.4	Pumice Drain	4.4	5.8	10.6	17.1	21.9	26.6	27.0	24.8	17.4	13.6	7.6	4.1
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	81.0	Trifolium 22 Drain	12.0	16.1	29.1	47.2	60.3	73.1	74.3	68.2	47.9	37.4	20.8	11.4
Tamarisk-Arrow Weed-Iodine Bush Thickets/Scrub	cottonwood	51.9	Elmore Lake Spill to San Felipe Wash	8.9	10.6	14.2	20.0	30.2	36.7	40.5	37.2	31.3	23.6	11.8	8.7
Tamarisk Thickets	cottonwood	121.1	Trifolium 23 Drain	20.8	24.7	33.2	46.6	70.4	85.6	94.5	86.7	73.1	54.9	27.4	20.2
Tamarisk-Iodine Bush-Quailbush Thickets/Scrub	cottonwood	0.6	East Drains	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.3	0.1	0.1

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Iodine Bush Scrub	cottonwood	1.8	East Drains	0.3	0.4	0.5	0.7	1.0	1.3	1.4	1.3	1.1	0.8	0.4	0.3
Iodine Bush Scrub	cottonwood	16.4	East Drains	2.8	3.4	4.5	6.3	9.5	11.6	12.8	11.8	9.9	7.4	3.7	2.7
Iodine Bush Scrub	cottonwood	5.5	East Drains	0.9	1.1	1.5	2.1	3.2	3.9	4.3	3.9	3.3	2.5	1.2	0.9
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	13.5	Pumice Drain	2.3	2.8	3.7	5.2	7.9	9.6	10.6	9.7	8.2	6.1	3.1	2.3
Tamarisk Thickets	cottonwood	16.6	Pumice Drain	2.8	3.4	4.5	6.4	9.6	11.7	12.9	11.9	10.0	7.5	3.8	2.8
Tamarisk Thickets	cottonwood	3.1	Pumice Drain	0.5	0.6	0.9	1.2	1.8	2.2	2.4	2.2	1.9	1.4	0.7	0.5
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	7.4	East Drains	1.1	1.5	2.6	4.3	5.5	6.7	6.8	6.2	4.4	3.4	1.9	1.0
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	0.7	East Drains	0.1	0.1	0.3	0.4	0.5	0.6	0.6	0.6	0.4	0.3	0.2	0.1
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	0.7	East Drains	0.1	0.1	0.2	0.4	0.5	0.6	0.6	0.6	0.4	0.3	0.2	0.1
Iodine Bush Scrub	cottonwood	0.5	East Drains	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.1	0.1
Iodine Bush Scrub	cottonwood	4.0	East Drains	0.7	0.8	1.1	1.5	2.3	2.8	3.1	2.9	2.4	1.8	0.9	0.7
Iodine Bush Scrub	cottonwood	1.7	East Drains	0.3	0.3	0.5	0.7	1.0	1.2	1.3	1.2	1.0	0.8	0.4	0.3
Iodine Bush Scrub	cottonwood	0.5	East Drains	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.1	0.1
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	0.7	East Drains	0.1	0.1	0.2	0.4	0.5	0.6	0.6	0.6	0.4	0.3	0.2	0.1
Cattail Marsh	Large stand permanent wetland	2.3	East Drains	0.3	0.5	0.8	1.3	1.7	2.1	2.1	1.9	1.4	1.1	0.6	0.3
Cattail Marsh	Large stand permanent wetland	0.2	East Drains	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	0.1	East Drains	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	1.1	East Drains	0.2	0.2	0.4	0.7	0.9	1.0	1.1	1.0	0.7	0.5	0.3	0.2
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	20.8	East Drains	3.1	4.1	7.5	12.1	15.5	18.8	19.1	17.5	12.3	9.6	5.3	2.9
Cattail Marsh	Large stand permanent wetland	7.7	East Drains	1.1	1.5	2.8	4.5	5.7	6.9	7.0	6.5	4.5	3.5	2.0	1.1
Tamarisk-Quailbush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	0.2	East Drains	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	212.6	East Drains	31.6	42.2	76.4	123.8	158.1	191.9	195.1	179.1	125.8	98.2	54.7	29.9
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	4.3	East Drains	0.6	0.9	1.5	2.5	3.2	3.9	3.9	3.6	2.5	2.0	1.1	0.6
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	2.9	East Drains	0.4	0.6	1.0	1.7	2.1	2.6	2.6	2.4	1.7	1.3	0.7	0.4
Tamarisk-Quailbush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	15.4	East Drains	2.3	3.1	5.5	9.0	11.5	13.9	14.1	13.0	9.1	7.1	4.0	2.2
Tamarisk-Quailbush-Common Reed Thickets/Scrub/Marsh	Large stand permanent wetland	6.3	East Drains	0.9	1.2	2.3	3.7	4.7	5.7	5.8	5.3	3.7	2.9	1.6	0.9
Tamarisk-Quailbush Thickets/Scrub	cottonwood	0.1	East Drains	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	0.8	East Drains	0.1	0.2	0.2	0.3	0.5	0.6	0.6	0.6	0.5	0.4	0.2	0.1
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	0.5	East Drains	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.1	0.1
Tamarisk-Quailbush Thickets/Scrub	cottonwood	2.3	East Drains	0.4	0.5	0.6	0.9	1.3	1.6	1.8	1.7	1.4	1.1	0.5	0.4

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cattail Marsh	Large stand permanent wetland	2.5	East Drains	0.4	0.5	0.9	1.5	1.9	2.3	2.3	2.1	1.5	1.2	0.6	0.4
Iodine Bush Scrub	cottonwood	1.9	East Drains	0.3	0.4	0.5	0.7	1.1	1.3	1.4	1.3	1.1	0.8	0.4	0.3
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	3.7	East Drains	0.6	0.7	1.3	2.2	2.8	3.4	3.4	3.1	2.2	1.7	1.0	0.5
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	0.8	East Drains	0.1	0.2	0.3	0.4	0.6	0.7	0.7	0.6	0.5	0.4	0.2	0.1
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	4.1	East Drains	0.6	0.8	1.5	2.4	3.1	3.7	3.8	3.5	2.4	1.9	1.1	0.6
Tamarisk Thickets	cottonwood	0.6	East Drains	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.3	0.1	0.1
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	0.2	East Drains	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	2.0	East Drains	0.3	0.4	0.7	1.1	1.5	1.8	1.8	1.7	1.2	0.9	0.5	0.3
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	1.1	East Drains	0.2	0.2	0.3	0.4	0.6	0.7	0.8	0.8	0.6	0.5	0.2	0.2
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	147.8	East Drains	22.0	29.4	53.1	86.1	109.9	133.4	135.7	124.5	87.5	68.3	38.0	20.8
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	14.1	East Drains	2.1	2.8	5.1	8.2	10.5	12.7	13.0	11.9	8.4	6.5	3.6	2.0
Tamarisk-Cattail-Common Reed Thickets/Marsh	Large stand permanent wetland	1.9	East Drains	0.3	0.4	0.7	1.1	1.4	1.7	1.7	1.6	1.1	0.9	0.5	0.3
Tamarisk Thickets	cottonwood	0.8	East Drains	0.1	0.2	0.2	0.3	0.5	0.6	0.6	0.6	0.5	0.4	0.2	0.1
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	1.2	East Drains	0.2	0.2	0.4	0.7	0.9	1.0	1.1	1.0	0.7	0.5	0.3	0.2
Tamarisk Thickets	cottonwood	4.6	East Drains	0.8	0.9	1.3	1.8	2.7	3.3	3.6	3.3	2.8	2.1	1.1	0.8

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Iodine Bush Scrub	cottonwood	10.3	East Drains	1.8	2.1	2.8	3.9	6.0	7.3	8.0	7.3	6.2	4.7	2.3	1.7
Iodine Bush Scrub	cottonwood	1.6	East Drains	0.3	0.3	0.4	0.6	0.9	1.1	1.3	1.2	1.0	0.7	0.4	0.3
Tamarisk-Iodine Bush-Quailbush Thickets/Scrub	cottonwood	0.9	East Drains	0.1	0.2	0.2	0.3	0.5	0.6	0.7	0.6	0.5	0.4	0.2	0.1
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	4.4	East Drains	0.6	0.9	1.6	2.5	3.2	3.9	4.0	3.7	2.6	2.0	1.1	0.6
Tamarisk Thickets	cottonwood	1.2	East Drains	0.2	0.3	0.3	0.5	0.7	0.9	1.0	0.9	0.7	0.6	0.3	0.2
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	1.0	East Drains	0.2	0.2	0.4	0.6	0.8	0.9	0.9	0.9	0.6	0.5	0.3	0.1
Tamarisk-Iodine Bush-Cattail Thickets/Scrub/Marsh	Large stand permanent wetland	0.5	East Drains	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.1
Iodine Bush Scrub	cottonwood	1.4	Trifolium 23 Drain	0.2	0.3	0.4	0.5	0.8	1.0	1.1	1.0	0.8	0.6	0.3	0.2
Iodine Bush Scrub	cottonwood	0.3	East Drains	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1
Tamarisk Thickets	cottonwood	49.1	Elmore Lake Spill to San Felipe Wash	8.4	10.0	13.4	18.9	28.5	34.7	38.3	35.1	29.6	22.2	11.1	8.2
Tamarisk-Iodine Bush Thickets/Scrub	cottonwood	25.1	Trifolium 22 Drain	4.3	5.1	6.9	9.6	14.6	17.7	19.6	18.0	15.1	11.4	5.7	4.2
Cattail Marsh	Large stand permanent wetland	0.3	East Drains	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.0
Cattail Marsh	Large stand permanent wetland	62.8	East Drains	9.3	12.5	22.6	36.5	46.7	56.6	57.6	52.9	37.1	29.0	16.1	8.8
Cattail Marsh	Large stand permanent wetland	6.1	East Drains	0.9	1.2	2.2	3.5	4.5	5.5	5.6	5.1	3.6	2.8	1.6	0.9
Cattail Marsh	Large stand permanent wetland	64.8	East Drains	9.6	12.9	23.3	37.7	48.2	58.5	59.5	54.6	38.4	29.9	16.7	9.1

Natural Community	ET Vegetation type	Acres	Drain Group	Jan ET	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cattail-Common Reed Marsh	Large stand permanent wetland	0.5	East Drains	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.3	0.3	0.1	0.1
Tamarisk-Cattail Thickets/Marsh	Large stand permanent wetland	293.3	East Drains	43.6	58.2	105.4	170.8	218.1	264.6	269.1	247.0	173.6	135.4	75.4	41.2

TABLE H2-4

EXISTING CONDITIONS MONTHLY EVAPOTRANSPIRATION, MEAN MONTHLY DRAIN FLOWS, AND WATER BALANCE FOR NATURAL COMMUNITIES MAPPED ALONG THE EXPOSED PLAYA IN THE SALTON SEA SURVEY AREA. ANNUAL SUMMARIES OF EACH PARAMETER ARE ALSO SHOWN

Vegetation Drain Group	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Monthly ET (AF)													
East Drains	767	961	1,492	2,265	3,124	3,796	4,017	3,687	2,848	2,178	1,146	737	27,018
Elmore Lake Spill to San Felipe Wash	18	22	30	42	63	77	84	77	64	48	24	18	567
Pumice Drain	42	54	88	137	184	223	233	214	161	123	66	41	1,566
Trifolium 22 Drain	25	33	56	90	117	142	146	134	97	75	41	24	981
Trifolium 23 Drain	22	27	37	52	78	95	104	95	79	60	30	22	700
Mean Monthly Drain Flows (AF)													
East Drains	1,999	2,070	2,676	2,825	3,261	3,405	3,495	3,256	2,852	2,415	2,251	2,011	32,515
Elmore Lake Spill to San Felipe Wash	168	108	107	58	38	54	90	114	120	144	176	209	1,384
Pumice Drain	1,005	910	1,300	1,588	1,418	1,596	1,644	1,269	1,387	1,994	1,760	1,409	17,279
Trifolium 22 Drain	240	264	652	507	206	162	227	248	179	256	258	261	3,459
Trifolium 23 Drain	228	246	340	314	248	240	347	257	309	364	302	250	3,446
Existing Monthly Flows minus ET Demand Balance (AF)													
East Drains	1,231	1,109	1,184	561	138	(391)	(522)	(431)	4	237	1,105	1,274	5,498
Elmore Lake Spill to San Felipe Wash	150	86	77	16	(25)	(22)	6	37	55	95	151	191	817
Pumice Drain	963	856	1,212	1,451	1,235	1,372	1,411	1,055	1,226	1,870	1,694	1,368	15,712
Trifolium 22 Drain	215	232	595	417	89	20	80	114	82	181	217	237	2,478
Trifolium 23 Drain	206	219	303	262	170	145	244	162	230	304	272	229	2,746

Vegetation Drain Group	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Existing Monthly Flows minus ET Demand Balance (inch/Acre)													
East Drains	0.02	0.02	0.02	0.01	0.00	(0.01)	(0.01)	(0.01)	0.00	0.00	0.02	0.02	0.10
Elmore Lake Spill to San Felipe Wash	0.12	0.07	0.06	0.01	(0.02)	(0.02)	0.00	0.03	0.04	0.07	0.12	0.15	0.64
Pumice Drain	0.30	0.26	0.37	0.45	0.38	0.42	0.44	0.33	0.38	0.58	0.52	0.42	4.86
Trifolium 22 Drain	0.11	0.12	0.30	0.21	0.05	0.01	0.04	0.06	0.04	0.09	0.11	0.12	1.26
Trifolium 23 Drain	0.13	0.14	0.19	0.17	0.11	0.09	0.15	0.10	0.15	0.19	0.17	0.15	1.74

SOURCE: ESA

TABLE H2-5

PROPOSED ACTION MONTHLY EVAPOTRANSPIRATION, MEAN MONTHLY DRAIN FLOWS, AND WATER BALANCE FOR NATURAL COMMUNITIES MAPPED ALONG THE EXPOSED PLAYA IN THE SALTON SEA SURVEY AREA. ANNUAL SUMMARIES OF EACH PARAMETER ARE ALSO SHOWN.

Vegetation Drain Group	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Monthly ET (AF)													
East Drains	767	961	1,492	2,265	3,124	3,796	4,017	3,687	2,848	2,178	1,146	737	27,018
Elmore Lake Spill to San Felipe Wash	18	22	30	42	63	77	84	77	64	48	24	18	567
Pumice Drain	42	54	88	137	184	223	233	214	161	123	66	41	1,566
Trifolium 22 Drain	25	33	56	90	117	142	146	134	97	75	41	24	981
Trifolium 23 Drain	22	27	37	52	78	95	104	95	79	60	30	22	700
Mean Monthly Drain Flows (AF)													
East Drains	1,671	1,774	2,349	2,508	2,933	3,087	3,168	2,928	2,535	2,087	1,933	1,683	28,657
Elmore Lake Spill to San Felipe Wash	154	95	93	44	24	41	76	100	106	130	162	195	1,220
Pumice Drain	831	753	1,126	1,419	1,244	1,427	1,470	1,095	1,218	1,820	1,592	1,235	15,228
Trifolium 22 Drain	205	233	617	473	171	128	192	214	145	221	224	226	3,048
Trifolium 23 Drain	194	215	305	281	213	206	313	222	275	329	269	216	3,037
Proposed Monthly Flows minus ET Demand Balance (AF)													
East Drains	903.5	813.2	856.1	243.4	(190.1)	(708.2)	(849.7)	(759.1)	(312.8)	(91.0)	787.9	946.0	1,639.2
Elmore Lake Spill to San Felipe Wash	135.7	73.4	63.2	2.3	(39.2)	(36.0)	(7.7)	22.6	41.8	81.3	137.8	177.1	652.4
Pumice Drain	788.4	698.5	1,037.4	1,282.2	1,060.5	1,203.8	1,236.9	880.7	1,057.5	1,696.3	1,525.8	1,194.1	13,662.0
Trifolium 22 Drain	180.2	200.2	560.3	382.8	53.8	(14.1)	45.4	79.2	48.3	145.9	183.1	202.1	2,067.3
Trifolium 23 Drain	171.2	187.7	268.4	228.4	135.0	111.7	208.8	127.2	196.1	269.7	238.8	194.0	2,336.9

Vegetation Drain Group	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Proposed Monthly Flows minus ET Demand Balance (inches/Acre)													
East Drains	0.016	0.014	0.015	0.004	(0.003)	(0.012)	(0.015)	(0.013)	(0.005)	(0.002)	0.014	0.017	0.029
Elmore Lake Spill to San Felipe Wash	0.106	0.057	0.049	0.002	(0.031)	(0.028)	(0.006)	0.018	0.033	0.063	0.108	0.138	0.509
Pumice Drain	0.244	0.216	0.321	0.397	0.328	0.373	0.383	0.273	0.327	0.525	0.472	0.370	4.228
Trifolium 22 Drain	0.092	0.102	0.286	0.195	0.027	(0.007)	0.023	0.040	0.025	0.074	0.093	0.103	1.055
Trifolium 23 Drain	0.109	0.119	0.170	0.145	0.086	0.071	0.132	0.081	0.124	0.171	0.151	0.123	1.482

SOURCE: ESA