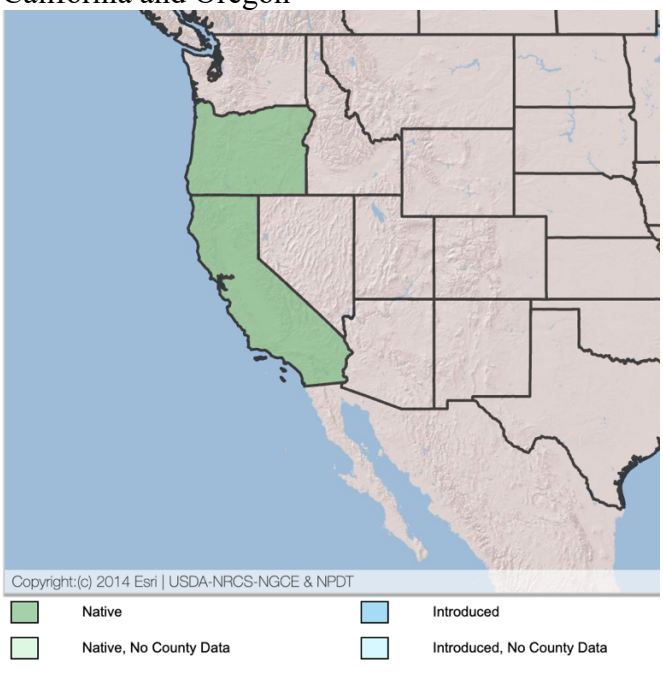
Plant Propagation Protocol for *CACH13*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/*[year]*/*[USDASpeciesCode.pdf]*

TAXONOMY	
Plant Family	
Scientific Name	*Camissonia cheiranthifolia*
Common Name	Beach suncup
Species Scientific Name	
Scientific Name	*Camissonia cheiranthifolia* (Hornem. ex Spreng.) Raimann
Varieties	
Sub-species	*Camissonia cheiranthifolia* (Hornem. ex Spreng.) Raimann ssp. *cheiranthifolia* *Camissonia cheiranthifolia* (Hornem. ex Spreng.) Raimann ssp. *suffruticosa* (S. Watson) P.H. Raven
Cultivar	
Common Synonym(s)	*Oenothera cheiranthifolia* (Hornem ex Spreng.)
Common Name(s)	Evening primrose, beach suncup
Species Code (as per USDA Plants database)	CACH13
GENERAL INFORMATION	
Geographical range	California and Oregon 
Ecological distribution	Beachside, dunes
Climate and elevation range	Full sun

	Low moisture[1] Less than 500 ft above sea level[2]
Local habitat and abundance	Sand
Plant strategy type / successional stage	Stress-tolerator
Plant characteristics	Forb/herb[3]
PROPAGATION DETAILS	
Ecotype	Marin County, California
Propagation Goal	plants
Propagation Method	seed
Product Type	Container (plug)
Stock Type	4in pot
Time to Grow	2 weeks[4]
Target Specifications	Root System: Firm plug in container
Propagule Collection Instructions	Seeds are collected between May 1st and September 13th. Mature capsules turn from green to red to brown and split from the top at maturity. Capsules are 10 to 25 mm long, 2 to 2.5 mm wide, 4 angled, generally 2 coiled. Seed is 1.2 to 1.3 mm long, minutely pitted in rows and dull brownish black at maturity.
Propagule Processing/Propagule Characteristics	Seed Cleaning: Seeds may require cleaning if not completely dried out Storage Conditions: Seeds are kept dry and stored in a refrigerator
Pre-Planting Propagule Treatments	None required
Growing Area Preparation / Annual Practices for Perennial Crops	Fully Controlled Greenhouse. Sowing Method: Transplanting Germinants. Seeds are sown in flats containing Sunshine Mix #4 Aggregate Plus (peat moss, perlite, major and minor nutrients, gypsum, and dolomitic lime). Seeds are mixed with media to sow and are surface sown. Flats are watered in with an automatic irrigation and mist system and placed on heated bench. Seeds are sown on June 1st
Establishment Phase Details	Seedlings are transplanted after germination to individual containers (4 inch pots) containing standard potting mix of peat moss, fir bark, perlite, and sand.

[1] *Beach Primrose, Camissoniopsis cheiranthifolia*. California Native Plant Society. (2018). https://calscape.org/Camissoniopsis-cheiranthifolia-()

[2] *Beach Primrose*. Nature Collective. (2015). https://naturecollective.org/plant-guide/details/beach-primrose/

[3] USDA plants database. (n.d.). https://plants.usda.gov/home/plantProfile?symbol=CACH13

[4] Gordon, Denise. 2016. Propagation protocol for production of Container (plug) *Chamerion angustifolium* Plants Petri Dish; In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources

Length of Establishment Phase	4 weeks[5]
Active Growth Phase	Once seedlings are established, plants develop rapid shoot and root growth 2 to 4 weeks following germination. Plants are fertilized with 20-20-20 liquid NPK at 100 ppm weekly during the growing season
Length of Active Growth Phase	12 weeks
Hardening Phase	Plants are fertilized with 10-20-20 liquid NPK at 200 ppm in early fall. Containers are leached with water. Irrigation is gradually reduced through September and October
Length of Hardening Phase	4 weeks
Harvesting, Storage and Shipping	Total Time To Harvest:7 months Harvest Date: September Storage Conditions: Overwinter in outdoor nursery under insulating foam cover and snow. Seedlings are ready for outplanting in September
Length of Storage	5 months
Guidelines for Outplanting / Performance on Typical Sites	Transplant Survival averages 85%
	[6]Young, Betty. 2007. Propagation protocol for production of Container (plug) *Camissonia cheiranthifolia* (Hornem ex Spreng.) Raimann. plants 4 inch pot; San Francisco, California. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.
Other Comments	
INFORMATION SOURCES	
References	See below
Other Sources Consulted	Haskin, L. L. (Leslie L. (1934). Wild flowers of the Pacific coast, in which is described 332 flowers and shrubs of Washington, Oregon, Idaho, central and northern California and Alaska; 182 full-page illustrations. Metropolitan Press. *Plant database*. Lady Bird Johnson Wildflower Center - The University of Texas at Austin. (n.d.). https://www.wildflower.org/plants/result.php?id_plant=CACH13

[5] Luna, Tara. 2008. Propagation protocol for production of Container (plug) *Oenothera flava* (A. Nels.) Garrett plants 160 ml container; USDI NPS - Glacier National Park West Glacier, Montana. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources

[6] Young, Betty. 2007. Propagation protocol for production of Container (plug) *Camissonia cheiranthifolia* (Hornem ex Spreng.) Raimann. plants 4 inch pot; San Francisco, California. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

	Pojar J., McKinnon A.,1994 Plants of the Pacific Northwest: Washington, Oregon, British Columbia and Alaska, B.C. Ministry of Forests and Lone Publishing, Canada Young, Betty. 2001. Propagation protocol for production of Container (plug) *Camissonia micrantha* (Hornem. ex Spreng.) Raven plants San Francisco, California. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.
Protocol Author	Ellie Muscat
Date Protocol Created or Updated	05/23/23

References

1 *Beach Primrose, Camissoniopsis cheiranthifolia*. California Native Plant Society. (2018). https://calscape.org/Camissoniopsis-cheiranthifolia-()

2 *Beach Primrose*. Nature Collective. (2015). https://naturecollective.org/plant-guide/details/beach-primrose/

3 USDA plants database. (n.d.). https://plants.usda.gov/home/plantProfile?symbol=CACH13

4 Gordon, Denise. 2016. Propagation protocol for production of Container (plug) *Chamerion angustifolium* Plants Petri Dish; In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

5 Luna, Tara. 2008. Propagation protocol for production of Container (plug) *Oenothera flava* (A. Nels.) Garrett plants 160 ml container; USDI NPS - Glacier National Park West Glacier, Montana. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

6 Young, Betty. 2007. Propagation protocol for production of Container (plug) *Camissonia cheiranthifolia* (Hornem ex Spreng.) Raimann. plants 4 inch pot; San Francisco, California. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.