

The 20th Petaluma River Marathon and Half-Marathon Sunday, 1 September 2024



Overview

Since 2004, the Petaluma River Marathon has served as the West Coast flat-water marathon/half marathon championship. It is one of the most beautiful and fun races on the west coast. Participants have ranged in age from 13 to near 80, with an array of experiences from ocean rowers, Olympians, and super paddlers to enthusiastic beginners, and *joie de vivre* as demonstrated by two Frenchmen with fully stocked picnic hamper aboard their canoe. Bring plenty of water and food to get you through the race, then we'll relax together afterwards on the adjacent Foundry Wharf green with a potluck feast. The race takes advantage of:

- **Excellent conditions:** Typically cool with flat water at the start, and minimal interference with motorboat wakes.
- **Beautiful venue:** The picture above of the bends near the halfway point does not exaggerate the unique character of the river. For most of its course, the river flows through a nature preserve that conveys an impression of early California. In the foreground, competitors are amidst native plants and wildlife of a large wetland, and in the background the California coastal range rises to define the horizon.
- **Fortunate coincidence:** The river stretches 13.1 miles from the NBRC dock near downtown Petaluma to the 100+ year-old railroad bridge near the entrance to San Pablo Bay. Accordingly, those navigating from the NBRC dock to this bridge and back will cover the standard marathon distance of 26.2 miles. Half Marathon participants, lacking such a stolid turning point, will reverse their course around an orange buoy anchored that morning in the center of the river at the halfway point.

Celebration: As always, we'll recover together over our shared potluck feast and awards ceremony and, of course, hear the stories.

Eligible Craft: Practically any rowed or paddled craft as follows:

Rowing: Sliding-seat (8+, 4+, 4-, 2X, 2-, 1X), both flat and open water designs

Paddling: Kayaks (ocean & flat water); surfskis; canoes; 1, 2, and 6-person outrigger canoes; and, for the half-marathon only, stand-up paddleboards

Entry: Register at <https://www.regattacentral.com/regattas/> (scroll down to Petaluma River Marathon)

All participants (or, for Juniors, their parents) must READ and SIGN a waiver. Fees for those registering prior to midnight Sunday August 28th are \$60, \$95, \$145, \$165, and \$205 for 1, 2, 4, 6, or 8 person boats, respectively. Fees thereafter are \$75, \$115, \$175, \$195, and \$235, respectively. Note: a special quarter-marathon category **exclusively** for Rivertown Racers U18 kayakers is also available. A few spots for boat trailers will be reserved in the order requested (Email: PetalumaRiverMarathon@gmail.com).

LIMITED ON-RIVER SUPPORT (3 launches, 13 miles). All participants must be fit, have proven ability to steer a proper course, and have the experience to safely handle any unexpected problems. First-time participants, are strongly advised **NOT** to attempt the **full marathon** unless they, including ALL members of their crew, have completed at least one training outing of that distance in less than 4.5 hours (note: the launch at the downstream RR bridge will return upstream beginning precisely two hours after the marathon starts: any remaining outbound participants will be required, without exception, to turn home as they are met by the launch). Similarly, Half Marathon SUP entrants must be able to paddle 13 miles in less than 3.5 hours.

All crews are requested to carry a cell phone in a waterproof pouch. Phone numbers for those aboard support launches and at race HQ will be provided.

Race Day (sunrise: ~6:40 am)

Park and prepare boats in the Foundry Wharf lot (625 2nd Street, Petaluma, CA). Check in at the North Bay Rowing Club (opens at 0530), where the race begins and ends. Affix 3" high bow numbers (to be assigned). For the benefit of Full Marathon participants' safety and so we can more easily be together for lunch and stories, we'll operate the race in two shifts this year. Barring delay imposed by heavy fog, the schedule is:

Full Marathoners: Safety Meeting at 0610; launch immediately thereafter. Proceed to the railroad bridge at 38.11194 N, 122.50145 W (~13.1 miles downstream) and return. Those completing the full distance, including moving ashore from their boat, will be honored during lunch celebrations.

Half Marathoners: Safety Meeting at 0700; launch thereafter in groups as directed. Proceed to the orange buoy in center of channel at 38.1831 N, 122.5437 W (~6.5 miles downstream of NBRC, and ~1 mile downstream of Lakeville) and return. Medal presentation a distinct possibility at lunch.

Traffic pattern: **KEEP STARBOARD SIDE NEAR SHORE AT ALL TIMES, INCLUDING TURNS TO PORT**, and avoid the middle of the river. Be prepared to give a wide berth to tugs/barges without hesitation (although never seen in action on Labor Day Weekend). Study charts appended to this document, especially for first two miles of the course.

Tides: Tidal levels indicated for Sept 1st are, for the Start/Finish location at NBRC, 7.0' at 12:40AM, -0.1' at 08:15 AM, and 5.9' at 02:26 PM; for Half Marathon Turnaround: 6.7' at 12:28 AM, -0.1' at 08:06 AM, and 5.7' at 02:14 PM; and at the Full Marathon Turnaround: 6.7' at 12:28 AM, -0.1' at 08:06 AM and 5.7' at 02:14 PM. Full Marathoners will thus ride a slow ebb tide for the 1st hour, and then be in relatively slack water until reaching the turnaround. They will then ride a flood tide of gradually increasing assistance all the way home. For half marathoners, participants will depart from ~ 7:30 to 8:30 AM and generally return by 10:30 AM, thus indicating light or no assistance on their outbound voyage, and gentle support when homeward bound.

Course Records: These are listed in the appended *Supplementary Material*. Crafty ones wishing to get in the record book may select an event devoid of a record: several categories (e.g., M8+) have never been contested!

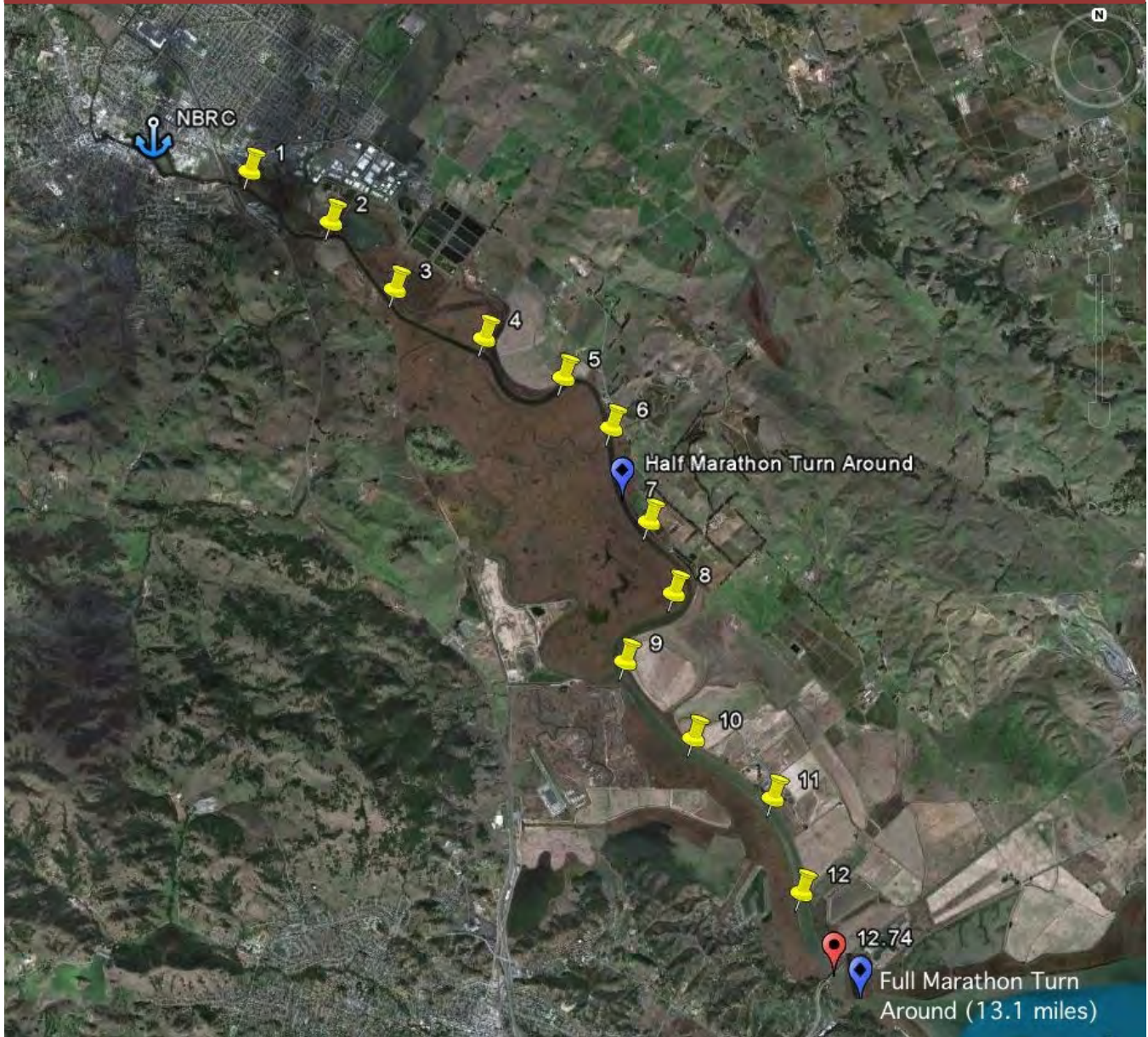
Nutrition and Hydration: The half marathon can be as short as 1.5 hours for an elite single sculler to twice that for a recreational paddler in a sea kayak. Double these times for the full marathon. The physical challenge is linked strongly to the athlete's fitness, nutrition, and critically on race day, ample hydration. Make sure to bring enough food and water. Five quarts or more of water and one to two thousand calories may be necessary during the full marathon. Participants are urged to read the excellent piece by Elizabeth Brown, a former national team rower and sports nutritionist, included below in *Supplementary Material*.

Contact: Email PetalumaRiverMarathon@gmail.com

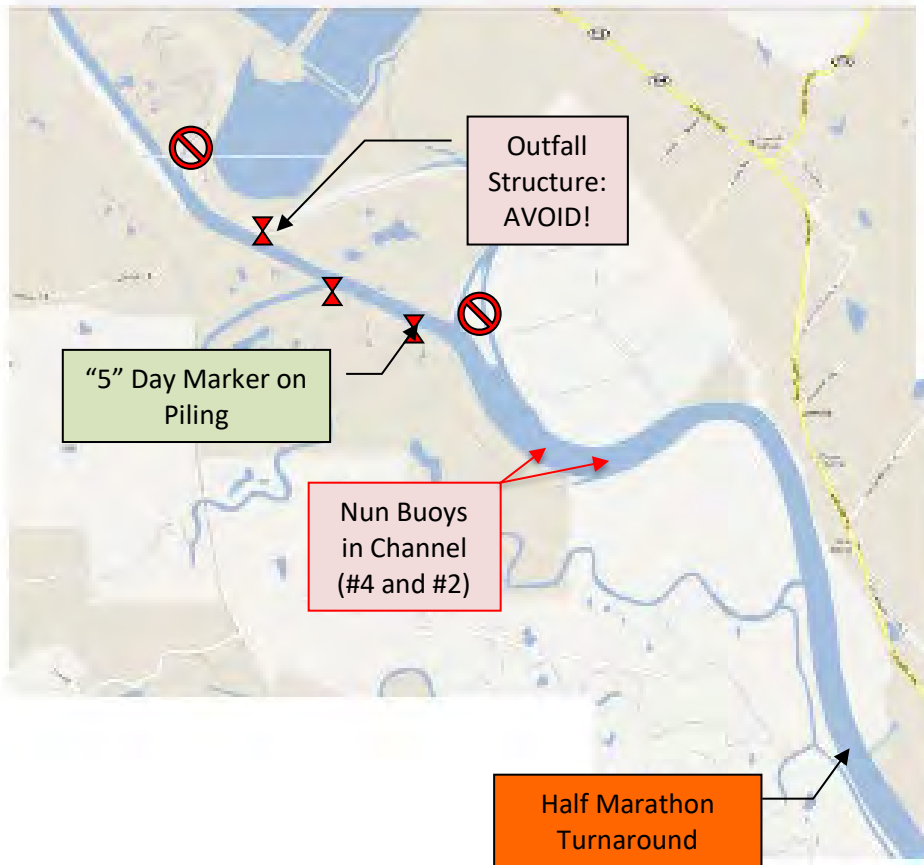
SUPPLEMENTARY MATERIAL

Petaluma River Environs

For a closer view, go to <https://youtu.be/mv8v9Gqg3HU> for a video of the river between Mile 4.3 and 1.3 (per "mileposts" on above graphic). This is the reach transited by the Wine Country Rowing Classic head race.



Half Marathon Course (top map shows first ~ 2 navigation-intensive miles; lower map shows the next 4+ miles)



Full Marathon Course (top chart shows first ~2 miles; other displays balance of route)



PETALUMA RIVER				
LOCATION	RIVER DISTANCE			
	Incremental		Cumulative	
	meters	miles	meters	miles
Downstream				
NBRC Dock	0	0	0	0
McNear Landing Dock	483	0.30	483	0.30
Downstream end of straight reach	354	0.22	837	0.52
Hwy 101 Bridge	499	0.31	1,336	0.83
RR Bridge	129	0.08	1,465	0.91
Power Tower	177	0.11	1,642	1.02
Ed's Barge (topside solar panels)	1,159	0.72	2,800	1.74
Red Wreck (beached on W bank)	1,014	0.63	3,814	2.37
The Tree	853	0.53	4,667	2.90
Petaluma Wastewater Outfall	579	0.36	5,246	3.26
Confluence San Antonio Creek	563	0.35	5,810	3.61
"5" Channel Marker	660	0.41	6,470	4.02
Lakeville Marina (boat ramp)	2,430	1.51	8,900	5.53
Winery (fancy private dock)	2,784	1.73	11,684	7.26
North end Redwood Landfill	2,881	1.79	14,565	9.05
Downstream Powerline over River	5,198	3.23	19,763	12.28
Hwy 37 Bridge (public ramp here)	676	0.42	20,439	12.70
Railroad Bridge	499	0.31	20,938	13.01
Upstream				
NBRC Dock	0	0	0	0
D Street Bridge	660	0.41	660	0.41
Balshaw Bridge (pedestrian bridge)	354	0.22	1,014	0.63
Note: Distances measured by Ned Orrett via Google Earth (July 2006). "Incremental" distances are from location immediately above; "Cumulative" are from NBRC dock.				

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PETALUMA RIVER MARATHON						
Fastest Times: FULL Marathon (25.4 miles prior to 2015; 26.2 miles thereafter)						
	CREW	CLUB	TIME (actual)	AGE	YEAR	NOTES
ROWING						
Men						
Flatwater Racing Shells						
Single	Patrick Treacy	n.a.	3:01:16		2005	Fastest handicap time: David Lay, 2:45:07 (2010)
Pair	Ryan Cardiff & Ben Holm	NBRC	3:54:18	18	2016	w/ handicap 3:54.18 (same as raw)
Double	Chris Dadd & Greg Lewis	LMRC	3:21:53	60	2019	w/ Handicap: 3:05:21
Four (coxed)						
Four (straight)	unknown	Marin RA	3:07:02		2005	W/ handicap 3:07.02 (same). Only straight four to row the Marathon
Quad	Adam Kreek, Ben Phillips, Jeffrey Wachtel, and Robert Vale	Stanford RC	3:29:36		2015	Stanford grad Adam Kreek rowed in Candian M8+ in 2004 (4th) and 2008 (1st) Olympic Games
Open Water Boats						
Single (modern)	Chris Dadd	Humbolt	3:34:51	63	2021	w/handicap: 3:12:05
Single (traditional)	Carry Chenoweth	OWRC	4:17:59		2007	(w/ handicap: 4:03:30)
Double						
Women						
Flatwater Racing Shells						
Single Pair Double	Perry Heffelfinger Claire Grundig, Alix Barry Corina Witt & Rachael Perry	OWRC	3:32:09		2005	Fastest handicapped: 3:26.15 Diane Greene (Rogue Rowing, 2019)
Four (coxed)	Alexa Bercutt, Sonya Mazrimas, Sophia Blunk, Lia Brackney, Cox: Carah Panega	NorCal OWRC	4:42:42		2015	w/ Handicap 4:42.42 (same as raw)
Quad Eight	Abigail Smyth, Meave Fallon, Barb Kobabe, and one more... Jen Mullin, Fredenika Horton, McKenzie Owen, Beatrice Korte, Laura Frame, Michelle Ferreira, Lisa Raffel, Marie-Anne Woolley, C. Abby Rezneck	RCRC NBRC EBRC	3:21:10 4:01:53		2005 2022	Fastest handicapped: 3:20.07 Maureen Lamb, Nancy Brown. (LGRC, 2014)
Open Water Boats Single Double			2:58:02 3:03:14	16 49	2005 2021	w/ handicap: 4:01.53 (same as raw) w/handicap 2:56:26
	Mary MacLachlan		3:27:10		2008	Maas Flyweight
Mixed						
Flatwater Racing Shells Pair Double Four Quad						
	Ann Cheng & Greg Lewis Chris Dadd, Laurel Condro, Mary Glaeser, & Greg Lewis	LMRC LMRC	3:07:29 3:05:36	38 55	2011 2017	
Eight	Junior 8+	BIAC	3:23:05		2010	w/ handicap 2:54:35 W/ handicap: 3:23.05 (same as raw). Organized by Monica Hilcu
Open Water Boats Double						
	Damon Vander Lind, Alia Vander Lind	Unaff.	4:12:04	28	2013	w/ handicap 4:12:03
PADDLING						
Men						
Kayak						
K1	Michael Hamilton	Unaff.	3:20:28		2018	Broke John Dye's record established in 2008
K2	Kyle Peter and Michael Miller	BPRC	4:06:57		2013	
K4						
Surfski						
Single Tandem	John Dye	Unaff	3:39:20		2021	
Outrigger Canoe						
OC-1	Kurt Kaunzinger	Unaff.	04:58:20		2013	
OC-2						
OC-6	Kaleo Garrigan, Kimo Garrigan, Kaimi Kealoha, Steve Lurtz, Lief Calvin, Thiago Silvia	Kai Wai	3:27:27		2021	
Canoe						
Single Tandem						
SUP	John Dye		4:45:00		2018	First to conquer the course aboard an SUP!
Women						
Kayak						
K1 K2 K4	Heather Davis	Unaff.	4:46:26		2013	
Surfski						
Single Tandem	Elaine Baden & Amy Byers	BPRC	3:45:39		2016	
Outrigger Canoe OC-1						
OC-2 OC-6						
Canoe						
Single Tandem						
Surfski (tandem)	Frank Peronetto and Heidi Scoble	BPRC	3:51:28		2013	
Outrigger Canoe						
OC-2	Ann Grove & Wayne Kocher	Unaff.	4:02:01		2008	
OC-6						
Canoe (tandem)						
MARATHON HIGHLIGHTS						
Youngest						
HS M2X	Bjorn Hessen-Schmidt & Wesley Low	PARC	4:08:21	15	2011	Decided on the fly to do Full Marathon
Eldest						
Single (rowing)	David Lay	OWRC	3:16:37	70	2010	w/ Handicap: 2:45:07 (fastest for any boat!)
Most Illustrious						
M4X	Stroked by Adam Kreek (2008 Olympic Gold CAN M8+)	Stanford	3:29:36	-	2015	Stanford Univ well represented by this crew...

Notes: (1) Times are affected by tides and wind which of course vary from year to year, (2) Current thru 2019 PRM

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Fastest Times: HALF Marathon (13.1 miles)

	CREW	CLUB	TIME (actual)	AGE	YEAR	NOTES
ROWING						
Men		Twin Donut SSU	1:30:44	52	2021	Fastest w/handicap: Don Hunt (BPRC), 1:24:59 (2021) w/ handicap 1:59:58 (same as raw)
Flatwater Racing Shells Single	Greg Klingsporn	Berkeley HS EBRC	1:59:58	21	2021	
Pair Double	Mike Vuksich & Jason Caldwell	LMRC/LBRC	1:30:21	17	2019	w/ handicap 1:30:21 (same as raw) w/ handicap: 1:30:46
Four (coxed)	Dominic Hernandez & Samuel Packman Mary Elise Conzelman (c), Zack Newbegin, Eric Karleskind, Serge Ballian, Bob Kunkler	NBRC	1:31:32 1:26:03 1:48:42	39 58 61	2022 2017	w/ handicap: 1:19:18 w/ handicap: 1:40:35
Quad	Chad Reid, David Kerns, Jacob Engwerda, Timothy Rice					
Eight	L. Krautheim, S. Krautheim, B. Demsher, J. Berry, N. Honey, S. Skubic, J. Dunham, C. Riddle, T. Drobnick					
Open Water Boats Single	Brandon Caesar	LMRC	1:48:25	32	2017	Fastest w/ handicap: Ron Iverson (76), 1:45:18 (2017)
Double	Ron Iverson and Steven Dewey (b)	Rogue	1:57:27	75	2018	w/ handicap: 1:41:25
Women						
Flatwater Racing Shells Single	Elien Tomek	NYAC EBRC	1:31:41	35	2019	w/handicap 1:31:41
Pair Double	Wendy Madieros & Jessica Fisher (b) Kelly Amdur & Diane Davis	SERC	1:56:35	44	2016	w/ handicap: 1:54:03
Four (coxed) Quad	Linda Marousek, Jordan Brouphry-Holtin, Sara Schnattler, & Ida Linton	LMRC EBRC	1:35:01	41	2012	w/ handicap: 1:33:32
Eight	Heather Krakora, Carla Jourdan, Florencia Prada, Stephanie McFadden	LMRC	1:49:10	? 52	2011	Fastest w/ handicap: 1:44.09 (2022, TMRC): Teri Long, Cammie Garnero, Carolyn Steele, Lesley Hess C: Jennifer Grant
Open Water Boats Single	C. Katrina Poole, Hayley McCausland, Elizabeth Hazon, Tracy Fidell, Alexandra Nelson, Caryn Augst, Linda Marousek, Jill Martinucci, Mary Glaeser	OWRC NBRC	1:34:56	49	2022	w/ handicap 1:30:32
Double	Kellee Adams Jordyn Brounstein and Shannon Gallup (Juniors)		1:35:03 1:54:23 1:50:54	59	2022 2018 2015	Fastest w/ handicap: 1:28:50 (EBRC 2016): Rezneck [c], Velez, Horton, Krakuer, Mudge, Jourdan, Sidia, Lake, and Nelson w/ handicap: 1:45:23
Mixed						
Flatwater Racing Shells Pair	Bella Schiros & Brandon Caesar	BIAC/OWRC NBRC	1:59:44	32	2022	w/ handicap 1:59:31
Double Four	Steve Messner and Kyrsta Kasternakis	BIAC/LGRC LMRC	1:35:01	?	2012	Fastest w/handicap: 1:31:43 (NBRC 2021) Steven Messner & Anita Buckner
Quad	Joan Pendleton, R. Yaw, J. Pierce, and Nancy Brown	BPRC	1:29:09	? 39	2013	Fastest w/ handicap: 1:25.01 (2019 LMRC) Carlos Reategui, Jason McPhate, Lori Schwefel, Caryn Augst w/handicap 1:27:11
Eight	C. Alexis Ajello Chad Reid, Christopher Rolling, Ethan Pederson, Caryn August, Wendy Madieros, Kevin Kawada, Stephanie Collins		1:28:12	31	2021	w/handicap 1:37:36
Open Water Boats Double	Bella Schiros & Brandon Caesar		1:37:43		2021	Fastest w/ handicap: Dowdell & Glaeser, 1:48:04 (201
PADDLING						
Men	Philip Majumdar	RTR RTR	1:37:24	15	2018	
Kayak	Christian Johansen & Zachary Alva-Boone	Unaff BIAC	1:51:09	19	2016	
K1 K2 K4	Albert Szilvasy		1:51:11		2022	
Surfski	Glenn Friedland & Lukose Ninan		1:54:21		2022	
Single Tandem						
Outrigger Canoe OC-1	Dan Hammer	Unaff	1:54:17		2022	
OC-2 OC-6	Tamalpais		1:54:01		2012	
Canoe	Tom Biglione	RCP	2:41:39		2016	
Single Tandem	Pascal Bryere & Jean-Pierre Girard		3:14:26		2011	Picnic hamper aboard!
SUP	Grant McFadyen	BRBS	2:14:54		2015	
Women						
Kayak	Lia Gaetano	BPRC	1:56:53		2015	
K1 K2 K4	Susan Starbird & Cath Caddell	RTR	2:08:57		2015	
Surfski	Lisa Oberth	Unaff	2:05:19	59	2018	
Single Tandem	Elaine Baden and Amy Byers	BPRC	1:53:31		2018	
Outrigger Canoe OC-1	Cindy Holten		2:46:17		2014	
OC-2 OC-6	Helen Gallagher and Kim Green	RIVC	2:20:27		2014	
Canoe						
Single Tandem						
SUP	Madeline King		2:50:17		2015	
Mixed						
Kayak	Raoul Adamchak and Leigh Archer	Unaff	2:35:37	45	2018	
K2 K4	Elaïne Baden & Frank Peronetto		1:48:56		2011	
Surfski (tandem) Outrigger Canoe						
OC-2	He'e Nalu & Lokahi		1:56:14		2013	
OC-6						
Canoe (tandem)						
SPECIAL						
Youngest	Jasper Caddell & Rori McDaniel (mixed crew)	RTR	2:15:39	13 ½	2015	Thirteen years old and a brilliant performance!
Double Surfski	Ty Hadley	RCP	2:38:56	80	2016	Flipped and lost his Go-Aheads in the mud!
Eldes	Ellen Tomek	NYAC	1:32:15	35	2019	USA Olympian - Double Sculls 2008 (5th)
Single Surfski	Meghan O'Leary	NYAC	1:32:36	35	2019	USA Olympian - Double Sculls 2016 (6th) Despite dropping his bowball in racking of old RR bridge, Don still "posted" the fastest age-adjusted time of all Half Marathon boats in 2015 (1:28:36)
Most Illustrious	Don Hunt	BPRC	1:40:38	64	2015	
W1X W1X M1X						

Notes: (1) Times are affected by tides and wind which of course vary from year to year; (2) Current thru 2022 PRM

NUTRITION FOR THE PETALUMA MARATHON¹

Part 1 - Hydration

To successfully row and paddle the Petaluma Marathon greatly depends on appropriate training and nutrition. This article is the first of two. Currently, discussion includes the importance and how to's of hydration. The second article will address carbohydrate, protein and fat consumption necessary for successful completion of this 26-mile event.

Dehydration, defined as more body water lost than consumed, compromises performance by inhibiting one's ability to dissipate heat. When body temperature rises too much, proteins, including enzymes, cook and become ineffective. Think of cooking an egg and how the protein changes or denatures. This same type of change happens when body temperature rises above 104 degrees F, which is not uncommon during exercise. Performance is compromised when as little as 2% body weight is lost. An athlete weighing 180 lbs experiences a decrease in performance with a 3.6 lb loss during a workout or race. An athlete weighing 135 lbs experiences a decrease in performance with a 2.7 lb loss during a workout or race.

A discussion of what to do comes next and a discussion of why to do it follows that.

What to do

For a great marathon performance, match fluid lost with fluid consumed. To do this, consider fluid consumption before, during and after the marathon. In addition to the quantity of fluid consumed, timing and type of fluid is important.

Before the marathon: Drink enough fluid of any kind, except alcohol-containing fluids, until urine is nearly clear and fairly frequent. A pre-event meal should include plenty of fluids and watery foods – fruit, juice and caffeine-containing beverages, as desired. Drink 16 ounces (oz.) just prior to the start of race.

During the marathon: Keep in mind thirst and the desire to drink does not match body-water requirements. Thirst is usually triggered when 2% of body weight is lost, an already compromised state. Numerous researchers have demonstrated volitional drinking (drinking when and as much as the athlete wants) during exercise in the heat does not meet needs. So, knowing the amount and frequency of fluid needed, will improve performance. Athletes have two options, which are either use established sweat rates for most athletes or calculate your own sweat rate. See below to calculate individual sweat rate. General guidelines include taking 8 oz. (one cup) of fluid every 15 minutes of exercise. Athletes who are heavy sweaters should consume more. Those who sweat less, compete at a lower intensity, if temperature is cool or humidity is low, less than 8 ounces four times an hour may be adequate.

The nature of rowing and paddling makes drinking (and urination) during an event difficult. Stopping to drink from a water bottle every 15 minutes (min) may impede progress (although not drinking will absolutely impede progress and stopping on a regular basis may provide reasonable mental and physical breaks necessary to complete 26 miles). An alternative to consider would be wearing a hydration system

¹ Prepared by Elizabeth (Izzie) Brown, M.S., R.D., C.S.C.S. Izzie teaches sports nutrition at San Jose State University. Izzie has coached the Women's Rowing Programs at Mount Holyoke College and Temple University. In 1995 she earned a silver medal at the Pan American Games in Argentina in the lightweight women's double rowing event. This article was prepared for the 2007 Petaluma River Marathon.

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on one's back (Camelback for example). The rower or paddler could drink easily with minimal interruption of rhythm. Also, consider an ice-filled hydration system. What better way to stay cool than to wear an ice pack on one's back?

The challenge when using a hydration system is knowing how much fluid is consumed. With a water bottle it is easy. A 22 oz. bottle should last most athletes 30 min or so, depending on the athlete. How will the athlete using a hydration system know when enough has been consumed? Consider doing a test. Pour 8 oz. of fluid into a cup. Place the hydration system hose into the cup and count how many seconds it takes to suck 8 oz. Plan to suck on the hose for that many seconds every 15 min during the race.

Some veterans of rowing marathons have designed ways to use the bladder with flexible hoses that allow them to drink without stopping and also keep weight off their back. Perhaps another article in this series will explain that design.

After the marathon: Drink until urination is frequent and urine is nearly clear.

Type of beverage

Coffee before the race? For many years, caffeinated beverages were taboo for athletes due to their diuretic effect. More recently it was determined that, while caffeine is a diuretic, it is not nearly as detrimental as once believed. Researchers have demonstrated that 2/3 of a caffeinated beverage contributes to hydration. Thus, if one consumes 12 oz. of coffee, 8 oz. will go toward promoting hydration. So drink caffeine-containing beverages, if desired. Caffeine may even provide an ergogenic effect, allowing the race to feel easier than it really is.

During the marathon, drink sports drinks. Sports drinks, either branded or homebrew, are essential. Examples of branded products are Gatorade, Powerade, or Allsport (6% sugar solution). A combination of sports drinks and water would be a second choice.

Why sports drinks? Because in addition to sugar, they contain sodium, potassium and chloride. These electrolytes accelerate the liquid absorption into the blood stream faster than water. Also, the flavor will promote consumption more than plain water.

There has been some press coverage of crises and even death from drinking too much water in a marathon. These are extreme cases, and one should be aware that the culprit is too much water, not too much liquid. Water without sodium and potassium salts dilutes the salts in the bloodstream, and that dilution of sodium is the source of the problem.

Why athletes need to stay hydrated

Ambient temperature, relative humidity, wind velocity and solar radiation contribute to body temperature changes. Factors that increase body temperature above that generated by exercise include high ambient temperature, above body temperature, through convection and conduction and solar radiation both directly from the sun and reflected off the water. Factors that lower body temperature include evaporation of sweat and conduction and convection from air and wind passing by exposed skin. The most effective method of cooling is evaporation. Think of how one's skin feels when being swabbed with alcohol before blood donation or shots. Evaporation, however, is inhibited when relative humidity is high. Humidity is a measure of how much moisture is present in the air. When water content in the air is low, evaporation of sweat occurs (think of osmosis) and results in cooling. When water content in the air is high, little evaporation thus little cooling occurs. So imagine a dry cool breezy race day and cooling will occur readily. If race day is cool with fog and no wind, cooling by evaporation will not occur. Add to

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this day, the burning off of fog after one hour and then a slight breeze with an increase in ambient temperature, evaporation, convection and conduction will occur but adequate fluids must be consumed to allow heat dissipation.

Wear light colored clothing that wicks moisture away from the skin for evaporation. Poor ventilated clothing can create a humid environment next to the skin even on dry days. The direction of wind also makes a difference in cooling. Moving into a head wind promotes cooling through convection and conduction; in a tail wind cooling by convection and conduction is inhibited. When cooling is inhibited, sweating will increase in an attempt to dissipate heat, making appropriate hydration even more important.

Determining Sweat Rate

For those who want more personalized information about how much fluid to consume, determine your sweat rate. To a great extent sweat rate depends on exercise intensity, ambient temperature and humidity. So, when determining sweat rate, pick a day and a workout (race pace workout but not of race duration) that most closely matches conditions on race day.

- 1) Weigh yourself naked right before your workout and write it down.
- 2) Workout at the intensity you plan to race at.
- 3) Drink fluids as you normally would.
- 4) Weigh yourself naked after working out.
- 5) Subtract your post-exercise weight from your pre-exercise weight. This represents water weight lost during a workout.
- 6) If you drank during your workout, weigh how much you drank. (remember that 16 oz. water weighs 1 lb.)
- 7) Add weight of fluids consumed to water weight lost during exercise (#5).
- 8) Convert duration of workout into hours.
- 9) Divide water weight lost by workout duration in hours.
- 10) Convert lbs of water back into oz. by multiplying by 16 oz. The resulting figure represents sweat rate in oz. per hour. Simply match intake during the race to sweat rate to promote thermoregulation.

Example:

180 lbs (pre-exercise weight) – 175 lbs (post-exercise weight) = 5 lbs water lost

Consumed 22 oz water bottle during = 1 lbs

Total water lost = 6 lbs

90 min workout or 1 hours: 6 lbs / 1 hours = 4.3 lbs per hour sweat rate

4.3 lbs x 16 oz. = 69 oz must be consumed to match fluid losses.

This represents slightly more than 3 water bottles each hour. Few athletes will carry that much fluid during a workout but to successfully complete the marathon, challenge yourself to do so and watch a terrific race unfold.

Part 2 - Eating

This reviews improving food choices during training to make your time on the water count and to give guidelines for fueling on race day.

Athletes obtain their calories from four sources, carbohydrates, protein, fat and alcohol. Of course, alcohol does not enhance athletic performance but the other 3 macronutrients do.

Protein, found in meat, dairy, soy, grains, legumes and a small amount in vegetables, helps build and repair tissue and is a part of hormones and enzymes. Protein can provide energy for exercise but is not truly designed for that purpose. Fat, found in oil, nuts, fat, dairy and animal foods, and carbohydrate, found in grains, dairy, fruit and vegetables, on the other hand, are designed to provide energy for exercise. So, in order to meet the demands of the Petaluma Marathon, carbohydrate should be the main source of energy while fat contributes a good bit. How much carbohydrate compared to fat that is burned depends entirely on intensity of exercise. Higher exercise or racing intensities results in a greater contribution from carbohydrate and less from fat.

Protein contributes anywhere from 5-15% of total calories during training and racing. The percent of protein depends on the carbohydrate content of the diet and the duration of exercise. To a great extent, an athlete consuming a high carbohydrate diet reserves protein for its primary job, tissue building, maintenance and repair, and uses very little for energy. An athlete on a low carbohydrate diet requires the use of protein to meet energy needs regardless of how much fat is in the diet or body fat.

Having dispensed with the formalities, there are two crucial periods of time to focus on for training and racing at the Petaluma Marathon. First, you must eat well daily to support proper training. It is reasonable to think that you only race as well as you train. If training is hampered by poor nutrition, your training will be less effective and race day will be less than stellar. So, proper daily nutrition is needed. Second, you must carry fuel during the race to meet your racing energy needs. Even with ideal pre-event eating and drinking, the race is so long that carbohydrate, and possibly protein, is needed during the race.

Proper daily fueling means that 50-65% of your calories should come from carbohydrate sources. Protein should comprise 12-20% of calories and fat should make up the balance, 15-30% of calories. Another way to look at it is you should consume about 5 to 10 grams of carbohydrate per kilogram of bodyweight. About 1.2-1.6 grams of protein per kilogram of bodyweight should be consumed. And fat should make up the balance of your calorie needs. The best way to know how many calories you need, as well as determine how well your diet meets your exercise and health requirements is to use a computer program to analyze it. A terrific and free analysis program is available at www.supertracker.usda.gov. Use the Physical Activity Tracker to create an account and then evaluate your eating and exercise habits. Keep in mind if you only enter your diet without entering your exercise, the estimated calories, carbohydrate and protein needs will be low. These are dependent on the type, intensity and quantity of exercise. Add an extra 300-800 extra calories for each hour of rowing or paddling, add one half more grams of protein and 100-200 additional grams of carbohydrate.

As for fueling on race day, hydration and carbohydrates are the keys to success. The pre-event meal or snack has a few purposes: primarily to provide hydration and secondarily to provide some carbohydrate or glucose or sugar to the blood so your brain has something to run on after an overnight fast. Thirdly, the pre-event meal should be of low residue, meaning not containing a lot of fiber, and also low in fat. Both contribute to slow gastric emptying and potential gastrointestinal (GI) upset on the racecourse. Satisfying pre-event meals could be yogurt, fruit and water or cereal, milk and juice or French toast, fruit and water or eggs, toast, fruit and juice. The longer time you have before the start of the race the larger the meal can be and the more fat it can contain. Be sure to do a trial run of eating before a practice to see what works best on race day.

During the race, plan to consume 0.7-1 gram of carbohydrate per kilogram of bodyweight per hour of racing. Sports drinks are the best way to accomplish this. They provide hydration and fuel in a tasty, easy to consume package. Please refer to the article on hydration for details. Of course, you need to train using these products to get your gut used to digesting large quantities while racing. Race day is never

the time to try something new. Whether you choose to obtain your calories from drinks, bars or gels is a personal preference. Carbohydrates will get into the bloodstream fastest if obtained from sports drinks in the concentration that the manufacturer recommends. Do not water down your Gatorade, Powerade or other drink. They are made in about a 6% carbohydrate solution, which doesn't require digestion to get into the blood for transport to working muscles and to your brain. Drinks like Coca Cola, juice and bars and gels all require digestion to be broken down into a form that can enter the blood and used by working muscles. This means that the time to feel better after ingestion is longer if you choose to consume anything more concentrated than sports drinks. There are products that are more energy dense (contain more calories) than sports drinks and come in liquid form so they provide hydration, carbohydrate, protein and fat in an easy-to-digest form and can be consumed during an event. Metabolol is such a product. PowerBar makes one as well, and there are probably more on the market. You would do well to experiment with these products in long training sessions. It may be that sports drinks work well for you until the 90 minute mark and then you need more sustenance before consuming sports drinks again or even water. Water should not be consumed in large quantities especially to the extent that you gain weight during an event. Please refer to the Hydration article written earlier for information on water toxicity.

It appears there may be some benefit to including a carbohydrate and protein beverage during long training sessions. Athletes using these products show less muscle breakdown during training, an unfortunate result of long training. Researchers demonstrated that consuming these products on race day hasn't shown any performance benefit. However, because protein is present, this product may stave off hunger. For some athletes, including protein in your during-event beverage or food may cause some GI upset. Use the products in training to see how you tolerate them. Your GI tract can be trained to handle more fluid and nutrients just as your heart can be trained to pump harder. Be sure to practice drinking the quantities that you anticipate needing on race day during training sessions to evaluate tolerance. If you wish to experiment with sports drinks that have protein in them, PowerBar makes one; Accelrade is another.



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WAIVER

NBRC’s registration staff will ensure the following waiver has been executed by all athletes of each crew prior to launching. **Please Note: Parents or Guardians must sign for each athlete under 18 years of age.**

Legal Waiver: In consideration of acceptance of entry in the 2023 Petaluma River Marathon, I, the undersigned participant, intending to be legally bound, do hereby for myself, my heirs, executors, and administrators, waive, release, and forever discharge any and all rights and claims for damages which may hereafter accrue to me against any and all persons, organizations, and legal entities affiliated with such regatta, more particularly, the North Bay Rowing Club, together with their respective officers, agents, employees, successors, assigns, and/or sponsors; for any and all damages which may be sustained or suffered by me in connection with, or entry in, and/or arising out of our traveling to or participating in the Petaluma River Marathon, and notwithstanding §1542 of the California Civil Code.

ATHLETE’S NAME (please print)	ATHLETE’S SIGNATURE (or Parent/Guardian if under 18)	DATE