



Galley Guide: Solar Cooking

A long, long time ago, on a dock far, far away I had my first taste of solar cooking. It was Baja Mexico in Spring. The sun arched high into the cloudless sky every day and, while attempting to keep the cabin cool, we cooked almost all our meals on the barbeque. Always curious about innovative cooking techniques I couldn't help but question our neighbors when, one afternoon, I spotted a solar oven on the bow of their catamaran. After patiently fielding my inquiries about all things solar cooking, they insisted that I take the contraption home and try it out for myself. I jumped at the opportunity and lugged the big, box-type solar oven down the dock.

The next day I made a batch of bread, baking one loaf in my regular oven and one loaf in the solar oven. To my surprise, except for a slightly softer crust, it was impossible to tell which had been baked out on deck using nothing but sunshine. I was



excited by the possibilities, but it was disappointingly obvious that my days of solar cooking were numbered; I simply had no place to store a two foot square wooden box when not in use. Hopes of making solar cooking a regular part of my galley routine were put on the back burner.

My curiosity about solar cooking simmered for 9 long years. Recently I found two solar ovens—the GoSun Sport and the Sunflair Solar Oven—that were compact and portable. Although not specifically designed for marine use the size and design of both suited my space constraints. However, could solar cooking really replace traditional cooking methods? Only time, and many cooking experiments, would tell.

FEEL THE FORCE

Solar ovens, and solar cooking, have been around for hundreds of years. French scientist, Horace-Bénédict de Saussure, recorded temperatures in a glass-topped, black cork box of 212°F in 1764, and as early as the 1870s the French Foreign Legion included a solar cooker in their expedition kits. However, it hasn't been until recently that we've seriously started to consider integrating solar powered devices into our everyday lives.

The science behind solar cookers is quite simple, in fact if you've ever felt that overwhelming blast of hot air while getting into a car on a hot summer's day you already know how it works. Sunlight (UV light) is directed into a closed compartment

either through a piece of plastic or glass, or via a reflector. The UV energy is converted to thermal energy and is trapped in the closed compartment. The food placed inside the now hot compartment begins to cook. Solar cookers can reach between 180-550°F, depending on the design. There are several types of solar cooker designs; the box cooker, the parabolic cooker, the reflective cooker and, most recently, the evacuated glass tube.

The Sunflair Solar Oven is a simple box-type cooker but without all the bulk. Made from a closed-cell foam is it lightweight and portable. It has a nylon outer, a foam core and employs a reflective foil-like material inside the oven to better direct the sun's rays. It folds flat and is easily assembled, with the transparent plastic cover zipping into place to hold its upright, oven shape.

The GoSun Stove is a little more sophisticated, using a double layer glass tube as its cooking compartment. Inspired by a solar hot water heater, this laboratory-grade glass tube has a reflective coating facing inwards that traps the UV rays inside the oven. The space between the layers of glass has been evacuated and acts as a thermal insulator, like a high-quality vacuum flask thermos. The tube is surrounded by two metal parabolic reflectors that help direct the sun's rays and fold like a clam shell to protect the glass tube when not in use.

DO. OR DO NOT. THERE IS NO TRY

I started my solar cooking experiments exactly where I left off, bread. After 25 years of bread making I know exactly what each step of the process should look, feel and smell like. So, if the bread fails it is the cooking method, not human error.

Bread thrives in a moist hot environment, so it was no surprise that loaves baked in both the SunFlair and the GoSun were a success. Due to the shape of the GoSun Sport I was

confined to making a baguette-style loaf, but the stainless steel cook tray browned the crust nicely and bread was ready in 30-45 minutes. The SunFlair solar oven allowed me to make a larger loaf but the bake time was between 3-4 hours, which meant no bread for lunch. The results were tasty but despite several attempts I never got a dark crust, not a deal breaker.

Next, I tried roasting vegetables and again had a successful afternoon cooking. Potatoes, carrots, onions, garlic, anything that you would think to throw in a traditional oven can be cooked using a solar oven. Larger vegetables like squash were much easier to cook in the SunFlair oven as the GoSun cooking tube is only a few inches wide so everything must be diced to fit inside. Both solar ovens produce a lot of steam so none of the veggies developed crispy edges. However, I don't roast vegetables on board that often because of the heat my old oven throws into the cabin, so it was nice to include this cooking technique into our meal prep again.

Feeling like I mastered the finesse of monitoring and moving the solar ovens to maximize sun exposure, I was ready to dive into the main course; meat. I made a quick marinade, threw in some chicken thighs and after an hour I transferred half the chicken into the GoSun cooking tray and half into a black pot that I placed in the SunFlair. All that was left was to point the solar ovens at the sun and wait.

It didn't take long before I started catching wafts of dinner on the breeze,



the first sign that it is time to check your solar oven. It was necessary to drain liquid from both chicken dishes halfway through cooking so that the meat roasted rather than poached, but the result was moist, fork tender meat that was perfectly cooked. To go along with the chicken, I tried to cook rice but wasn't satisfied with the results. Rice in the SunFlair took a couple hours and was rather crunchy. Using the GoSun I found the liquid easily spilled from the shallow tray during cooking. I ended up with slightly over cooked rice and a sticky mess on the deck.

All that was left was the dessert course. I experimented with brownies and muffins, confidently giving away most of my wares to friends who agreed, between mouthfuls, that solar ovens can cook just about everything. With an excess of bread on the counter



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from my previous bake tests I decided to try a dessert that I made often as a child but had yet to attempt on board; bread pudding. The low, slow heat of the solar oven was a perfect match for this classic dessert, transforming some bits of stale bread, eggs and milk into a warm bowl full of sweet nostalgia.

ALWAYS PASS ON WHAT YOU HAVE LEARNED

I must admit that I was skeptical about solar cooking. I honestly didn't think a solar oven would be much more than a fun gadget that might be useful occasionally. As it turns out I use my solar ovens on a regular basis and have cooked everything from eggs to squid to cookies, all with scrumptious success. Enamored with solar cooking in the tropics I decided to take the solar ovens to Canada with me this fall just to see how they would perform in the dull, low sun of high latitude autumn. I am happy to report that not only did they survive the 20 hours of flight time, but other than a few more shadows to contend with on land both solar ovens worked perfectly in the cooler October climate.

However, no cooking method is perfect. The first stumbling block is obviously that you do need a lot of sun to efficiently use a solar oven. Lunch is an easy meal to make in a solar cooker, but if you want to serve your dinner hot from the oven you might be disappointed.

Neither the GoSun or the SunFlair are designed with life on board in mind. Windage is the biggest problem, especially if you don't have a large, sunny cockpit or aft deck. Although the GoSun Sport consistently reached higher cooking temperatures the narrow tube of the cooking chamber restricts what fits into it and how much you can cook at one time. I had no problems feeding two but if



Chicken and vegetables

we had guests onboard I would have to cook in batches. The SunFlair Solar Oven allows you to cook for a crowd, but its lower temperatures mean it acts more like a slow cooker than a traditional oven. I did find that using the black cookware that comes with it helpful in maintaining a warmer cooking surface.

Solar cooking does have one major benefit; sustainability. Harnessing the power of the sun and using a solar cooker is making a conscience decision to cut down on fossil fuels, if only for one meal. By regularly using a solar cooker on board we noticed a dramatic reduction in our propane consumption, getting an extra 4 weeks out of our 20lb tank. I guess you could say that a solar cooked meal not only feeds your hunger it also nourishes your soul. **BWS**

*All items were sent to *Blue Water Sailing* for testing, however all opinions are those of the author.

Heather Francis is originally from Nova Scotia, Canada but has lived and worked on the ocean for over a decade. She has cooked professionally on land and on yachts. These days you'll find her cooking on the deck of Kate, the Newport 41' sloop she and her Aussie partner, Steve, have been sailing since 2008. For more stories, photos and recipes log onto www.yachtkate.com

Sunny Day Breeding Pudding

Servings: 4-6
45 mins-2 hrs Bake

Difficulty: Easy

Time: 2 hrs Prep,

Bread Pudding is a beloved dessert that is easy, delicious and economical. Using the bits and ends of stale bread it is a great recipe for a solar oven as the low, slow heat allows the egg and milk mixture to cook gently into a sort of custard.

It is difficult to give exact cooking times in solar oven recipes as it all depends on how much sun you have and how hot your oven gets. I recommend baking for 30 minutes and then checking every 20 minutes for doneness. This also makes a great breakfast...if you have any leftovers.

INGREDIENTS

- 4 Cups Stale Bread, diced into 1" cubes
- 2 Cups Warm Milk or Soy Milk
- 1 Cup Hot Water
- 3 Eggs
- 1/3 Cup Raw Sugar or Maple Syrup
- 1 tsp Vanilla
- 1 tsp Cinnamon, Ginger and Allspice
- 1/2 Cup Raisins, Candied Ginger or Dried Fruit

METHOD

Dice bread and put in a large bowl. Pour milk and hot water over bread and mix well. Let sit for 1-2 hours, stirring occasionally, so that the bread can absorb the liquid. Separate eggs. To the yolks add the sugar, vanilla and spices and beat until frothy. Add egg yolk mixture and dried fruit to bread and mix well. Beat egg whites until fluffy. Add egg whites to bread mixture and fold in gently to combine. Pour mixture into a dark, heat proof dish and place in oven. Bake until firm and cooked through, 1-2 hours depending on the sun. Serve hot with a drizzle of maple syrup, cream, a splash of rum or all three!



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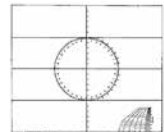


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