In Vino Veritas: How Misinterpreting the California Coastal Act Has Hindered Creativity in Wine Country

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I. INTRODUCTION 467
II. BACKGROUND 469
A. *The Coastal Zone Management Act of 1972* 469
B. State Coastal Protection Laws 469
C. The Wine Fermentation Process 470
D. FDA Issues with Underwater Fermentation 471
E. Environmental Concerns with Underwater Wine 472
F. Ocean Fathoms and the Case for Domestic Underwater Wine 473
III. ANALYSIS 474
A. The Ocean Floor—A Natural Cellar? 475
B. Additional Issues Underwater Vintners Face 475
C. Environmental Concerns 476
D. Intent of the California Coastal Act vs. the Execution 477
E. Pros and Cons of a Change in the Law 478
F. Economic Implications 479
IV. RECOMMENDATION 480
V. CONCLUSION 482

I. INTRODUCTION

Could fermenting wine in the ocean make it taste better? In the territorial sea,[1] the depth and temperature are perfect to replicate a cellar.[2] The only issue is that the territorial sea is governed by the states, who impose strict limitations on its use.[3] On the west coast, all three states require a strict process to use the ocean floor, and cutting through the red

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1 The territorial sea is an area off the coast of each state up to 12 nautical miles. *Maritime Zones and Boundaries*, NOAA (Mar. 25, 2024), https://www.noaa.gov/maritime-zones-and-boundaries [https://perma.cc/CG8C-FSFZ].

2. *See, e.g.*, Matt Kettmann, *Felonies Dropped Against Ocean Fathoms, but Bottles Being Destroyed*, SANTA BARBARA INDEP. (July 18, 2023), https://www.independent.com/2023/07/18/felonies-dropped-against-ocean-fathoms-but-bottles-being-destroyed/ [https://perma.cc/S87H-JTCL].

3. *See id.*

tape is not easy.[4] For one California company, its ocean floor fermentation plan was quickly interrupted with charges from the District Attorney's office.[5] Underwater wine may not be popular in the United States yet, but other countries have experimented with it and found it to be in demand. A cruise line in Norway sank wine, and after recovering and serving it to the guests, the demand led to another 4,500 bottles being sunk.[6] A company in Croatia grows its grapes on a peninsula in the Adriatic Sea and ferments its wine in the water right off its property.[7] Similar operations exist in Spain,[8] Greece,[9] France,[10] Montenegro,[11] and Argentina.[12] In a world where the United States is the 4th largest wine producer[13] and 85% of the national supply comes from California,[14] the United States is losing out.

This Note explores the history of the federal law and subsequent state laws governing the territorial sea and an attempt by a California company to bring underwater wine production to the United States. In Part III, this Note will discuss the potential impact a change in the law could have on the use of the ocean floor, such as a tragedy of the commons situation, and why that will not be an issue.[15] In Part IV, this Note will recommend a change in state laws to allow wine companies to use the ocean floor.[16] This change in the law will closely match the existing laws regarding lobster cages[17] (in terms of defining "structure") and aquaculture[18] (covering the rental idea of the ocean floor).

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4. California limits use of the ocean floor under the California Coastal Act to industrial facilities, existing boating structures, mineral extraction, and aquaculture. CAL. PUB. RES. CODE § 30233 (2023); *see also* CAL. PUB. RES. CODE § 30106 (2018) (defining what "development" means under the act). Oregon created the Ocean Resources Management Program that limits the activity in the ocean. OR. REV. STAT. ANN. § 196.425 (1987); Washington passed the Ocean Resources Management Act, which limits the use of the ocean floor, but it was not intended to interfere with recreation or commercial fishing. WASH. REV. CODE ANN. § 43.143.010 (1997).

5. Kettmann, *supra* note 2 (stating that "cofounders Emanuele Azzaretto and Todd Hahn pled no contest to a series of misdemeanors in exchange for the dropping of multiple felony charges" in relation their storage of wine bottles underwater off the coast of California).

6. Sarah Kuta, *Divers Find Crates of Unopened Champagne in 19th-Century Shipwreck*, SMITHSONIAN MAG. (July 31, 2024), https://www.smithsonianmag.com/smart-news/divers-find-shipwreck-loaded-with-champagne-near-sweden-180984784/ [https://perma.cc/8T9C-S3BB].

7. *About Us*, EDIVO, https://www.edivovina.hr/about-us [https://perma.cc/Z7R9-KAAD].

8. *See e.g.*, ELIXSEA, https://www.winesunderwater.com/en/ [https://perma.cc/LF3X-8K47].

9. *See e.g.*, *Gaia Wine Project*, DIVE CTR. VOLCANO SANTORINI https://scubagreece.com/projects/gaia-wine-project/ [https://perma.cc/8M5N-NPLW].

10. *See e.g.*, Mike Desimone & Jeff Jenssen, *Veuve Clicquot Is Experimenting with Aging Champagne Under the Sea. Here's What It Tastes Like.*, ROBB REP. (June 27, 2023), https://robbreport.com/food-drink/wine/veuve-clicquot-experimenting-undersea-champagne-aging-1234860686/ [https://perma.cc/R2QW-5FVN].

11. *See e.g.*, *Our Location*, UNDERWATER CELLAR KRAKEN, https://underwaterwine.me/index.php/en/our-locations-wine-cellar-kotor [https://perma.cc/W2ND-8GLX].

12. *See e.g.*, VINO DEL SOL, https://vinodelsol.com/thewineries/wapisa/ [https://perma.cc/CFN2-AMDE].

13. Jan Conway, *Leading Countries in Wine Production Worldwide 2024, by Country*, STATISTA (Sept. 19, 2025), https://www.statista.com/statistics/240638/wine-production-in-selected-countries-and-regions/ [https://perma.cc/RQT4-JDN5].

14. *United States Wine and Grape Industry FAQs*, NAT'L ASS'N OF AM. WINERIES (2019), https://wineamerica.org/policy/by-the-numbers/ [https://perma.cc/FZ9Z-7QRF].

15. *See* discussion *infra* Part III.

16. *See* discussion *infra* Part IV.

17. *See infra* notes 127–31.

18. *See infra* notes 156–60.

II. BACKGROUND

A. The Coastal Zone Management Act of 1972

The idea of preserving the ocean came into being in 1972 with the federal Coastal Zone Management Act.[19] The goal of this Act was to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone . . . ."[20] Congress found that the marine life in the coastal zone was "extremely vulnerable to destruction by man's alterations" and "present state and local institutional arrangements for planning and regulating land and water uses in such areas [were] inadequate."[21]

At the United Nations Convention on the Law of the Sea in 1982, the United States and many other countries agreed to maritime zones.[22] This treaty established a territorial sea from the shore of a country up to 12 nautical miles, which was for the use of that state.[23] It also established an exclusive economic zone, which extended from 12 nautical miles to 200 nautical miles.[24] Beyond 200 nautical miles was considered the high seas, which was beyond the control of any single country.[25]

In the United States, the federal government has control over the Exclusive Economic Zone, and the states share control with the federal government over the Territorial Sea.[26] Although the federal government cannot force the states to implement environmental preservation initiatives in the area of the territorial sea under exclusive state control,[27] it can encourage the states through the spending power in the U.S. Constitution.[28] Under Section 1454 of the Coastal Zone Management Act, Congress has encouraged coastal states to establish a management program to protect the territorial sea.[29] The state is eligible for federal funding if the program meets the standards imposed in Section 1455.[30]

B. State Coastal Protection Laws

The west coast is very protected when it comes to marine life. In 1976, California passed the Coastal Act, which utilized a Coastal Commission to monitor the coast and

19. Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451–65 (1972).

20. *Id.* § 1452(1).

21. *Id.* § 1451(d), (h).

22. *See generally* UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (1982), https://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf [https://perma.cc/HT86-DVPA].

23. *Id.* § 2, art. 3.

24. *Id.* art. 57. There is also a contiguous zone recognized up to 24 nautical miles that governs immigration, taxes, customs and sanitation but a discussion of its implications for the state and federal government is beyond the scope of this Note. *Id.* art. 33.

25. *Id.* art. 86.

26. Proclamation No. 5030, 48 FR 10605 (Mar. 10,1983).

27. The 10th Amendment Anti-Commandeering Doctrine reserves powers to the states that the constitution does not specifically delegate to the United States nor prohibit the states from having. U.S. CONST. amend. X. While there is a state and federal split in the territorial sea, the Submerged Lands Act of 1953 preserves state control over the first three miles from the shore. 43 U.S.C. §1312.

28. *Id.* art. I, § 8, cl. 1.

29. Coastal Zone Management Act of 1972 § 305, 16 U.S.C. § 1454.

30. *Id.* § 1455.

regulate development.[31] The intent of the Coastal Act was to preserve the environment and its resources while "taking into account the social and economic needs of the people of the state."[32] Anyone who wants to develop any part of the coast must get a coastal development permit.[33] The permits are issued by the local government, subject to the discretion of the California Coastal Commission.[34]

Oregon has a similar process to California. The Oregon Legislature passed the Oregon Ocean Resources Management Act,[35] which created the Ocean Policy Advisory Council and the Land Conservation and Development Commission.[36] These two groups jointly created the Territorial Sea Plan, which governs the types of development that can be undertaken in the coastal waters.[37] Oregon has severely limited the use of their territorial sea as well because their Legislature has found "[e]xploration, development and production of ocean resources . . . will increase the chance of conflicting demands on ocean resources for food, energy and minerals, as well as waste disposal and assimilation, and may jeopardize ocean resources and values of importance to this state."[38]

Washington state passed the Ocean Resources Management Act in 1989 to govern the use of the coastal ocean floor.[39] A person can obtain a permit to use the ocean floor if they meet the strict requirements established in the Act.[40] Among these requirements are: "a demonstrated . . . need for the proposed use or activity," "no reasonable alternative," "no likely long-term significant impacts to coastal or marine resources or uses," and reasonable steps have been taken to avoid environmental, social and economic impacts.[41]

C. The Wine Fermentation Process

For proper fermentation of wine, a vintner must "suppress[] the growth of undesirable microorganisms" as well as provide "temperature control for prevention of excessive heat [and] prevention of oxidation."[42] Controlling the temperature "during alcoholic fermentation is necessary to (1) facilitate yeast growth, (2) extract flavours and colours from the skins, (3) permit accumulation of desirable by-products, and (4) prevent undue rise in temperature, killing the yeast cells."[43] According to an Enology specialist at the University of

31. CAL. COASTAL COMM'N, CALIFORNIA COASTAL VOICES 131–36 (Annie Kohut Frankel & Christiane M.R. Parry eds., 2017), https://www.coastal.ca.gov/coastalvoices/CaliforniaCoastalVoices.pdf [https://perma.cc/TMY5-PCUF].

32. CAL. PUB. RES. CODE § 30001.5(b) (2024).

33. *Id.* § 30600(a).

34. *Id.* § 30600.5(a).

35. *See About the Ocean Policy Advisory Council*, OR. DEP'T OF LAND CONSERVATION & DEV., https://www.oregonocean.info/index.php/ocean-policy/ocean-policy-advisory-council/about-opac [https://perma.cc/BKN3-9RUJ].

36. *Id.*

37. OR. REV. STAT. ANN. § 196.471 (2023).

38. *Id.* § 196.415(2).

39. WASH. REV. CODE ANN. § 43.143.010 (2025).

40. *Id.* § 43.143.030.

41. *Id.* § 43.143.030(a)–(e).

42. Maynard A. Amerine, *Fermentation*, BRITANNICA (Oct. 3, 2024), https://www.britannica.com/topic/wine/Fermentation [https://perma.cc/RLP5-JFEL].

43. *Id.*

Minnesota, the best temperature to store wine for fermentation is between 55 and 60 degrees.[44]

In addition to keeping the proper temperature, "[c]ontact with air must be restricted to prevent oxidation during fermentation."[45] Although a little oxidation can be beneficial to enhancing the flavor of the wine, too much oxidation can lead to changes in color and flavor, lowering the overall quality of the wine.[46] Additionally, wines can get "light strike," which is "the unpleasant odour and taste resulting from light exposure suffered by wine."[47] Too much sunlight can cause chemical reactions in the wine that essentially ruin it.[48]

D. FDA Issues with Underwater Fermentation

Congress passed the Federal Food, Drug, and Cosmetic (FD&C) Act in 1938 to regulate consumer goods and ensure safe consumption and use.[49] One of the provisions in the Act attempted to limit consumption of contaminants by labeling goods as "adulterated" if they were "prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health."[50] The Food and Drug Administration (FDA) enforces the FD&C Act.[51] The FDA has expressed concern over the fermentation of wine in the ocean; the FDA argues that "aging wine in a way that bottle seals have contact with sea or ocean waters may render these wines adulterated under the FD&C Act in that they have been held under [i]nsanitary conditions whereby they may have become contaminated with filth or may have been rendered injurious to health . . . ."[52]

The biggest concern is the corks on the wine bottles. This is the only part of the bottle where contaminants could seep in, especially considering corks are "sensitive to fluctuations in temperature and humidity."[53] This sensitivity "leads to cork desiccation and even shrinkage, which either allows wine to seep out" or other contaminants, in this case, seawater, to seep into the bottle.[54] The Alcohol and Tobacco Tax and Trade Bureau (TTB) has also weighed in on the issue of underwater wine fermentation. Following the FDA's concern over adulteration, the Bureau listed the potential contaminants that could affect

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44. Drew Horton, *Grape Breeding and Enology*, UNIV. OF MINN. (Oct. 27, 2017), https://enology.umn.edu/news/keeping-it-fresh-proper-wine-storage-and-maturation [https://perma.cc/C2B3-ZT7R].

45. Amarine, *supra* note 42.

46. Carla Maria Oliveira et al., *Oxidation Mechanisms Occurring in Wines*, 44 FOOD RSCH. INT'L 1115, 1121–22 (2011).

47. *Protecting Fine Wine Collections from Light Exposure*, ARTRATIO, https://www.artratio.co.uk/protecting-fine-wine-collections-from-light-exposure [https://perma.cc/CS5R-VKK4].

48. *Id.*

49. Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301–399 (1938).

50. *Id.* § 342(a)(1).

51. Clinton Lam & Preeti Patel, *Food, Drug, and Cosmetic Act*, NAT'L LIBR. OF MED. (July 31, 2023), https://www.ncbi.nlm.nih.gov/books/NBK585046 [https://perma.cc/W4HD-3JCA].

52. Press Release, Alcohol and Tobacco Tax and Trade Bureau, Advisory on Underwater Aging of Wine (Mar. 17, 2015) https://www.ttb.gov/system/files/images/pdfs/ttb-announcement-underwater-storage-of-wine.pdf [https://perma.cc/T66V-JKDZ].

53. *Protecting Fine Wine Collections from Light Exposure*, *supra* note 47.

54. *Id.*

these wines.[55] They allege that trace amounts of chemicals and plastics have been found in seawater, which in turn could end up in the wine.[56]

In South Carolina in 2013, a vintner got in trouble with the FDA and TTB after his company sunk four crates of cabernet sauvignon in Charleston's harbor.[57] The FDA, in agreement with the TTB, voiced concern over the potential contaminants in the water and refused to give their stamp of approval.[58] Despite the vintner claiming he had tests showing the wine was never contaminated, the FDA refused to approve the wine at that time.[59]

This idea of underwater wines being "adulterated" does not seem to be a hard and fast rule though. In April of 2022, the FDA approved a Wisconsin company's request to import underwater fermented wines from the Adriatic Sea.[60] The FDA would not approve the importation until evidence was shown of the safety procedures to ensure there would be no contamination from the sea.[61] While there still is a ban on domestic production of underwater wine, the FDA has signaled that a change is coming.

President Trump's executive orders seem to indicate that the FDA may change its stance on fermenting wine in the ocean domestically. While the Trump administration has not yet addressed this, President Trump signed executive orders targeting pharmaceuticals, which are also regulated by the FDA.[62] The orders seek to reduce inspections and permitting requirements on domestic production of pharmaceuticals, increase the fees for foreign producers, and promote American-made products.[63] If this administration takes the same approach to wine, California vintners may get the green light to ferment wine underwater.

E. Environmental Concerns with Underwater Wine

There is concern that the process used to ferment wine underwater may harm aquatic animals that cling to the bottles. The goals of the federal and state laws were to protect marine life that is especially vulnerable to ocean development.[64] In many of the foreign products for sale, the wine bottles are decorated with dead sea creatures that clung to the bottles during their time underwater.[65]

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55. Press Release, Alcohol & Tobacco Tax & Trade Bureau, *supra* note 52.

56. *Id.*

57. Jenny Hopkinson, *The Government's Strange Underwater Wine Policy*, POLITICO MAG. (Apr. 18, 2015), https://www.politico.com/magazine/story/2015/04/charleston-harbor-wine-117080/ [https://perma.cc/84ER-LRY8].

58. *Id.* ("Every label on every bottle of booze sold in the United States has the greenlight from TTB.").

59. *Id.*

60. James Card, *Wine Aged Under Adriatic: Long Journey to Waupaca*, WAUPACA CNTY. NEWS (Oct. 18, 2022), https://waupacanow.com/stories/wine-aged-under-adriatic,56876 [https://perma.cc/R9KF-YZEM].

61. *Id.*

62. Exec. Order No. 14,293, 90 Fed. Reg. 19615 (May 5, 2025).

63. *Id.*

64. Coastal Zone Management Act of 1972, 16 U.S.C. § 1451 (1972); CAL. PUB. RES. CODE § 30001.5 (2024); OR. REV. STAT. ANN. § 196.415 (2023); WASH. REV. CODE ANN. § 43.143.030 (2025).

65. A quick perusal through the wine bottles for sale and it is clear that part of the luster is making the wine bottle look like it has been salvaged from a shipwreck. *See supra* notes 6–12 and accompanying text.

F. Ocean Fathoms and the Case for Domestic Underwater Wine

Emanuele Azzaretto and Todd Hahn founded Ocean Fathoms in California with the goal of producing and selling wine that was fermented underwater.[66] The founders were inspired to start the company after learning about champagne discovered on a shipwreck in the Baltic Sea.[67] After failing to obtain one of the bottles, they attempted to make their own under similar conditions.[68] They bottled their wine and sank it in cages a few miles off the Santa Barbara coast.[69]

In early 2021, the California Coastal Commission was made aware of the operation and sent a letter to Azzaretto informing him that his company lacked a permit and would need to remove the cages.[70] Ocean Fathoms violated Section 30106 of California's Coastal Act, which labeled any development of the coast as "the placement or erection of any solid material or structure" on the sea floor.[71] Any development required a permit, which Ocean Fathoms failed to obtain.[72] Ocean Fathoms was aware of the violation and proceeded to apply for a permit to use the ocean floor under the California Coastal Act.[73] The California Coastal Commission denied the permit application, arguing that the California Coastal Act limits permits to activities that deal with ports, boating, and restoration.[74] Since their wine operation did not deal with ocean shipping nor sea floor restoration, Ocean Fathoms was out of luck.

After being denied the permit, Azzaretto delayed pulling the cages from the ocean floor, citing "complexities associated with scheduling the recovery work including vessel, dive crew, equipment availability, and associated Covid-19 clearance requirements."[75] While the delay was initially agreed to, it was revealed that the delay "was done so the

66. Press Release, Off. of the Dist. Att'y, Cnty. of Santa Barbara, Re: *People v. Ocean Fathoms*, Emanuele G. Azzaretto & Todd Allen Hahn Santa Barbara Cnty. Superior Ct. Case No. 22CR08359 (Aug. 9, 2023), https://cdn.prod.website-files.com/651711e85af65256949e909e/669ecb19989c86d9df6812f6_Press%20Release%20Ocean%20Fathoms%20Azzaretto%20Hahn%2022CR08359.pdf [https://perma.cc/UB2C-AN3K].

67. Jonathan Edwards, *Two Winemakers Aged Their Wine in the Sea. They Were Convicted of a Crime*, WASH. POST (Aug. 18, 2023), https://www.washingtonpost.com/nation/2023/08/18/underwater-ocean-wine-illegal-california/ [https://perma.cc/Z82R-L7QD].

68. *See id.* (noting that the champagne found was put up for auction and Azzaretto and Hahn were unsuccessful in their bids).

69. *Id.*

70. E-mail from Jo Ginsberg, Enf't Analyst for the Cal. Coastal Comm'n, to Emanuele Azzaretto, President of 50 Fathoms LLC and Jennifer Leighton, Senior Project Manager of Padre Assocs., Inc. (Feb. 2, 2021) https://documents.coastal.ca.gov/reports/2021/8/Th12a/Th12a-8-2021-exhibits.pdf [https://perma.cc/4Z2H-JPZQ] [hereinafter E-mail from Jo Ginsberg I].

71. CAL. PUB. RES. CODE § 30106 (2024).

72. Press Release, Off. of the Dist. Att'y, Cnty. of Santa Barbara, s*upra* note 66.

73. E-mail from Emanuele Azzaretto, President of Ocean Fathoms, to Jo Ginsberg, Enf't Analyst for the Cal. Coastal Comm'n and Cassidy Teufel, Senior Env't Scientist of the Cal. Coastal Comm'n (Feb. 4, 2021), https://documents.coastal.ca.gov/reports/2021/8/Th12a/Th12a-8-2021-exhibits.pdf [https://perma.cc/N2VQ-63MT] [hereinafter E-mail from Emanuele Azzaretto].

74. E-mail from Jo Ginsberg, Enf't Analyst for the Cal. Coastal Comm'n, to Emanuele Azzaretto, President of 50 Fathoms LLC and Jennifer Leighton, Senior Project Manager of Padre Assocs., Inc. (Feb. 9, 2021), https://documents.coastal.ca.gov/reports/2021/8/Th12a/Th12a-8-2021-exhibits.pdf [https://perma.cc/D4DF-RHL2] [hereinafter E-mail from Jo Ginsberg II]. *See* CAL. PUB. RES. CODE § 30233 (2024) (listing the allowable uses of the coastal waters).

75. E-mail from Emanuele Azzaretto, s*upra* note 73.

wine could remain illegally in the water for a full year, and then removed to coincide with a private wine-tasting and PR event . . . ."[76]

After the California Coastal Commission found out about the reason for the delay, Emanuele Azzaretto and Todd Hahn were hit with a plethora of charges relating to their operation.[77] They agreed to a plea deal, which forced them to pay restitution to investors in return for avoiding a felony charge.[78] As part of the plea agreement, the wine they produced was destroyed, and the operation was shut down in California.[79] Other violations included selling adulterated wine without FDA approval and selling alcohol without a liquor license.[80] The wine operation in Santa Barbara was essentially over.

In August 2024, Ocean Fathoms partnered with the city of Coos Bay, Oregon to ferment their wine in the water.[81] Coos Bay is an estuary, and the city is located where the freshwater in the Coos River combines with the saltwater of the Pacific Ocean.[82] Coos Bay is one of the largest ports on the west coast, so it is heavily trafficked.[83] The port supports international markets for logs, lumber, and woodchips.[84] While this is a solution to Ocean Fathoms' problem of finding a spot to ferment their wine, it is not exactly the operation they had in Santa Barbara—it is far too busy for wine fermentation. The larger issue of ocean floor use in California remains unresolved.

III. ANALYSIS

This Part discusses why the ocean floor is the best spot to ferment wine, and dives into the other issues that underwater vintners such as Ocean Fathoms face and how they have been/will be resolved. Next, this Part will investigate the intent of the California Coastal Act and how its execution does not reflect its intent. Finally, this Part will look at the pros and cons that a change in the law could bring.

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76. E-mail from Jo Ginsberg, Enf't Analyst for the Cal. Coastal Comm'n, to Emanuele Azzaretto, President of 50 Fathoms LLC and Jennifer Leighton, Senior Project Manager of Padre Assocs., Inc. (July 16, 2021), https://documents.coastal.ca.gov/reports/2021/8/Th12a/Th12a-8-2021-exhibits.pdf [https://perma.cc/5PPU-J9GF] [hereinafter E-mail from Jo Ginsberg III]; *See* Steve Lopez, *They Say Their Ocean-Aged Wine is Magic in a Bottle. We Put that Claim to the Test*, L.A. TIMES (Nov. 6, 2021), https://www.latimes.com/california/story/2021-11-06/they-say-their-ocean-aged-wine-is-magic-in-a-bottle-a-claim-we-put-to-the-test [https://perma.cc/CJ6K-73XQ] (discussing a taste test PR event for Ocean Fathoms that was held in Santa Barbara after the wine was pulled from the ocean).

77. Press Release, Off. of the Dist. Att'y, Cnty. of Santa Barbara, s*upra* note 66.

78. *Id.*

79. *Id.*

80. *Id.*

81. Joe Benetti, *Ocean Fathoms Chooses Coos Bay for Launch of 'Sea Cellar' Method*, CITY OF COOS BAY OR. (Aug. 1, 2024), https://www.coosbayor.gov/Home/Components/News/News/1305/222 [https://perma.cc/NWB3-C763].

82. *Coos Bay Estuary*, OR. SHORES, https://oregonshores.org/coos-bay-estuary-v2/ [https://perma.cc/3WVL-AL7Y].

83. *Coos Bay: Gateway to Oregon's Adventure Coast*, THE OR. COAST, https://visittheoregoncoast.com/cities/coos-bay/ [https://perma.cc/XDF8-3X8J].

84. *About the Port*, OR. INT'L PORT OF COOS BAY, https://www.portofcoosbay.com/about-the-port [https://perma.cc/5V7X-4RBZ].

A. The Ocean Floor—A Natural Cellar?

As mentioned in Part II, the best temperature to ferment wine is between 55 and 60 degrees.[85] Additionally, the temperature must not fluctuate much because significant temperature changes can kill the yeast.[86] When considering these two facts, the ocean makes for the best place to ferment wine. In the area where Ocean Fathoms had originally stored their cages,[87] the temperature of the water on average reaches a low of 53.6 degrees Fahrenheit in March and a high of 63.6 degrees Fahrenheit in August.[88] This 10-degree fluctuation is right around the ideal temperature range to store wine, making the ocean floor a natural place for fermentation.

Additionally, Part II covered other issues that can arise in wine fermentation.[89] Major concerns among vintners are oxidation and "light strike."[90] Oxidation can happen when too much oxygen seeps in through the cork, essentially ruining the wine.[91] "Light strike" occurs when too much sunlight hits the bottle, which ruins the wine.[92] While the ocean still has oxygen dissolved in the water, it is very minimal compared to above the sea.[93] Pair that with "[a] high-density corking system [that] prevents seepage" and the oxidation problem is resolved.[94]

The sunlight issue can also be resolved by the ocean. The ocean provides a cover to the damage that sunlight can cause in wine.[95] While there is still sunlight hitting the ocean floor, the intensity of the sunlight is diminished, with "more than 50 percent of visible light energy" being absorbed in the first 33 feet.[96] With the perfect temperature, lack of oxygen, and reduced sunlight, the ocean floor is the best natural cellar.

B. Additional Issues Underwater Vintners Face

The main issues that vintners face in fermenting and selling underwater wine include: finding a place to store the wine legally, getting FDA approval to sell the wine, and, in the case of Ocean Fathoms, ensuring the company has the proper license to sell alcohol and is remitting the sales tax to the state.[97] The latter two issues are easily fixable and do not warrant additional consideration for the purposes of this Note.

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85. Horton, s*upra* note 44.

86. Amerine, s*upra* note 42.

87. Edwards, *supra* note 67 (explaining that Azzaretto and Hahn deposited their wine off the Santa Barbara coast).

88. *Santa Barbara Water Temperature*, SEATEMPERATURE.ORG, https://www.seatemperature.org/north-america/united-states/santa-barbara.htm# [https://perma.cc/5N7A-EXL6].

89. *See supra* Part II (discussing the issues that vintners face in fermenting wine in the ocean).

90. Amerine, *supra* note 42; *Protecting Fine Wine Collections from Light Exposure*, *supra* note 47.

91. Amerine, *supra* note 42.

92. *Protecting Fine Wine Collections from Light Exposure*, *supra* note 47.

93. *What Is a Dead Zone?*, NOAA, https://oceanservice.noaa.gov/facts/deadzone.html [https://perma.cc/74RB-68SP].

94. *Our Process*, OCEAN FATHOMS, https://oceanfathoms.com/pages/our-process [https://perma.cc/CPX4-WZ6P].

95. *Light in the Ocean*, EXPLORING OUR FLUID EARTH, https://manoa.hawaii.edu/exploringourfluidearth/physical/ocean-depths/light-ocean [https://perma.cc/Z44T-K97W].

96. *Id.*

97. Press Release, Off. of the Dist. Att'y, Cnty. of Santa Barbara, s*upra* note 66.

The legal implications of ocean floor use will be explored in Part IV,[98] but the FDA issue may be resolved. As stated in Part II, the FDA has weighed in on the issue of adulteration when it comes to underwater fermentation.[99] The main problem with underwater fermentation is with the corks. Significant temperature decreases can shrink the corks slightly, which can cause contaminants to seep in or wine to seep out.[100] This is especially concerning with ocean water, which the Alcohol and Tobacco Tax and Trade Bureau believes could contain trace amounts of chemicals.[101]

Ocean Fathoms claims to have a solution to this issue that the FDA has approved.[102] Ocean Fathoms alleges they have created "[a] high-density corking system [that] prevents seepage and preserves the wine's purity against the ocean's influence."[103] One of the founders even claims the FDA approved it as safe in July 2022, although time will tell, as these wines have yet to go to market.[104] Whether or not their process is FDA approved, there is a competing process that the FDA has semi-approved through a letter of no objection.[105]

The FDA previously allowed a Wisconsin company to import underwater wine from Croatia after extensive evidence showed that the sealing process prevented any seawater from seeping in.[106] They are currently the only company in the United States that has approval to import these underwater fermented wines.[107] While the FDA has not explicitly approved production of underwater wine in the United States, their letter of no objection to the Wisconsin wine importer signals their growing acceptance of the consumption of underwater wine, which may lead to a change in FDA regulation soon. President Trump's reduction of FDA permitting barriers through executive orders early in his second term has increased the odds of approval.[108] With a potential change coming, the ocean floor use issue is the last barrier to selling domestic underwater wine.

C. Environmental Concerns

In the case of Ocean Fathoms, there may need to be some give and take regarding the environmental concerns the California Coastal Commission expressed. As stated in the letter to the President of Ocean Fathoms, "if it is determined that your operation has resulted in adverse impacts to coastal resources, restoration and/or mitigation may be required."[109] Even the District Attorney thought it worth mentioning that "[a]fter a year, the crates were removed, along with the sea life living in them."[110] While having sea life cling

98. *Infra* Part IV.

99. Press Release, Alcohol and Tobacco Tax and Trade Bureau, s*upra* note 52.

100. *See supra* notes 53–54 and accompanying text.

101. Press Release, Alcohol and Tobacco Tax and Trade Bureau, s*upra* note 52.

102. Kettmann, *supra* note 2.

103. OCEAN FATHOMS, *supra* note 94.

104. Kettmann, *supra* note 2. As of this writing, none of their wines are yet available, so it is unclear if they will actually go to market. *Collections*, OCEAN FATHOMS, https://oceanfathoms.com/collections/collection [https://perma.cc/3D2S-A2LM].

105. Card, *supra* note 60.

106. *Id.*

107. *Id.*

108. *See supra* note 62 and accompanying text.

109. E-mail from Jo Ginsberg I, *supra* note 70, at 6.

110. Press Release, Off. of the Dist. Att'y, Cnty. of Santa Barbara, *supra* note 66.

to the bottles may be allowed in other countries,[111] that part of the marketing will have to go.

D. Intent of the California Coastal Act vs. the Execution

While Oregon and Washington have similar laws, this Note will narrow the focus to California law due to the state's importance in the international wine market[112] and the suit with Ocean Fathoms.[113] This Note discusses Oregon and Washington to highlight that vintners do not have a close substitute state to ferment their wine in the ocean. It would likely be too costly to move the whole fermentation operation farther from California since the grapes are grown there. The Ocean Fathoms lawsuit shows a larger issue than a lack of FDA approval, a lack of a liquor license, or failure to pay state and local taxes.[114] Provided the company had followed every other law and received FDA approval originally, they still would have had to pull their wine from the ocean floor. Although they put the cages in the water before getting a permit, the permit was still denied.[115] Was this the intent of the California Coastal Law?

The California Coast Act was passed as a way of balancing competing needs when it came to the ocean.[116] On the one hand, the California coast is home to many endangered species.[117] On the other hand, "the social and economic needs of the people of the state" rely on the ocean as well.[118] Ocean Fathoms was charged with violating the California Coastal Act's permit process outlined in Section 30600 of the Act.[119] This states that anyone "wishing to perform or undertake any development in the coastal zone . . . shall obtain a coastal development permit."[120] Development is defined under Section 30106 as "the placement or erection of any solid material or structure."[121]

After getting in trouble and applying for a permit after-the-fact, their request was denied due to the "proposed project [being] [in]consistent with Coastal Act Section 30233."[122] Section 30233 of the California Coastal Act discusses limits to the development of the sea floor, listing "industrial facilities," "boat launching ramps," "structural pilings for public recreational piers," "bur[ied] cables and pipes," and "[m]ineral extraction" among the development projects that would require a permit and heavy regulation from the California Coastal Commission.[123]

It seems that when the California Coastal Commission evaluated Ocean Fathoms' operation, they looked at the words in Sections 30106 and 30233 but overlooked the broader

111. *See supra* notes 6–12 and accompanying text.

112. *See supra* notes 13–14 and accompanying text.

113. Press Release, Off. of the Dist. Att'y, Cnty. of Santa Barbara, *supra* note 66.

114. *Id.*

115. E-mail from Jo Ginsberg II, *supra* note 74.

116. *See supra* Part II; CAL. PUB. RES. CODE § 30001.5 (2024).

117. *California Current: Species at Risk*, OCEANA, https://usa.oceana.org/california-current-species-risk [https://perma.cc/NP34-YUPQ] ("There are about 30 species of threatened and endangered fish, invertebrates, marine mammals, seabirds and reptiles found in the California current ocean ecosystem.").

118. CAL. PUB. RES. CODE § 30001.5(b) (2024).

119. *Id.* § 30600(a).

120. *Id.*

121. *Id.* § 30106.

122. E-mail from Jo Ginsberg II, *supra* note 74.

123. CAL. PUB. RES. CODE § 30233(a)(1)–(5) (2024).

intent of the Act. In both sections, the development listed is focused on lessening the environmental impact.[124] The Commission believed that since a cage did not fall into one of the uses listed in Section 30233, it was not allowed under the California Coastal Act.[125] This Note argues the opposite. If the intent of the Act is to protect the ocean floor from environmental damage, then anything that would not cause environmental damage should be allowed, albeit with heavy regulations.

The problem with issuing permits for underwater wine comes from the fact that the Commission has viewed wine cages in the same light as "structural pilings" and "bur[ied] cables and pipes," when they should be viewing it similarly to lobster cages. Wine cages are not permanent; instead, they are removed after fermenting for a year.[126] Similarly, lobster cages are removed after a few days.[127] After the traps are emptied, they are put back to harvest more.[128] While the timelines are different, the idea is the same. A cage is left on the ocean floor to create a product to sell. Lobster cages are allowed but regulated in California,[129] so the law should address wine cages as well.

E. Pros and Cons of a Change in the Law

A change in the law would have many benefits to the economy. In a world where underwater wines are gaining popularity,[130] California has an opportunity to capture the domestic market and compete internationally. The FDA has opened up to the idea of letting the United States consume underwater fermented wines, which may create demand for imported wine.[131] If California does not change its law soon, the domestic wine producers will lose out to the established foreign underwater wine producers.

Additionally, many wine producers claim that fermenting wine underwater can age the wine faster due to the pressure exerted on the bottles, but California's restrictive laws are preventing these vintners from experimenting.[132] Wapisa Winery in Argentina alleges that "3 years of aging in a winery is equivalent to 1 year underwater."[133] The South Carolina vintner mentioned earlier also claimed that wine that fermented for three months underwater tasted "as if it aged two years."[134] While this may just be a selling point in the wine world, vintners deserve to test the theory.

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124. *Id.* §§ 30106, 30233; *see also id.* § 30253 (discussing how all new development should focus on lessening environmental impact).

125. E-mail from Jo Ginsberg II, *supra* note 74.

126. E-mail from Jo Ginsberg III, *supra* note 76.

127. *Lobstering Basics*, UNIV. OF ME., https://umaine.edu/lobsterinstitute/educational-resources/lobstering-basics [https://perma.cc/UM76-SCHM].

128. *Id.*

129. CAL. FISH & GAME CODE § 9010 (2024).

130. *See supra* notes 6–12 and accompanying text (discussing the international demand for underwater wines).

131. *See supra* notes 60–61 (discussing the FDA's change in policy regarding underwater fermented wines).

132. Mike Pomranz, *Aging Wine Underwater Created 'Stunning' Difference, Says Winery*, FOOD AND WINE (Feb. 26, 2021), https://www.foodandwine.com/news/wine-aged-under-ocean-argentina (on file with the *Journal of Corporation Law*).

133. Julieta Poblete, *What Are Underwater Wines,* TIME OUT *(*July 29, 2025) https://www.timeout.com/buenos-aires/underwater-wines-foster-lorca-wapisa-fincas-patagonicas.

134. Hopkinson, s*upra* note 57.

On the other hand, there is a concern that changing the law to include ocean floor use by vintners may create a tragedy of the commons situation with ocean resources.[135] If wine companies are allowed to use the ocean floor to ferment their wine, what will stop other businesses from storing their products on the ocean floor as a way of saving space? If wine cages are compared to lobster cages, the tragedy of the commons can be prevented in a similar way. While wine fermentation does not use up a resource naturally occurring such as lobster, it does use up space on the ocean floor. In the lobster industry, overconsumption of lobster is prevented through limitations on permits.[136] Ocean floor use could similarly be limited through a permit process discussed in Part IV.

If the change in the law provides a narrow focus to address wine, the issue of businesses storing their product on the ocean floor will not be a problem. The California Legislature could amend the law to allow wine products to be fermented on the ocean floor but severely limit acceptable uses.[137] This could take the form of making the company prove their product will have no environmental impact on the ocean, and making the company donate a percentage of their profits to protecting the ocean.[138]

F. Economic Implications

The wine industry is very important to California, and if a change in the law does not happen, vintners may leave for a place that would allow underwater fermentation. Underwater fermented wines are gaining popularity, and California vintners will need to adapt their business models to account for this change. In 2022, the California wine industry generated around $88 billion.[139] This comes from fewer than 4,800 wine producers.[140] These vintners also employ around 250,000 people and stimulate the California economy by attracting tourists to "wine country."[141] While there are small vintners in California, the wine industry is concentrated with the ten most prominent vintners producing 57% of the domestic wine.[142] Nine of the ten largest wine producers in the United States hail from California or are conglomerates with California connections.[143] If these large vintners leave California for a place that allows underwater fermentation, California's economy could be devastated.

Since the FDA has signaled its growing acceptance of the consumption of underwater wine, a change in regulation may be coming. If the FDA were to officially allow importation of foreign-produced underwater wine, the domestic wine producers will lose out. If

135. Alexandra Spiliakos, *Tragedy of the Commons: What It Is & 5 Examples*, HARV. BUS. SCH. ONLINE (Feb. 6, 2019), https://online.hbs.edu/blog/post/tragedy-of-the-commons-impact-on-sustainability-issues [https://perma.cc/3KN7-UE88] ("The tragedy of the commons refers to a situation in which individuals with access to a public resource—also called a common—act in their own interest and, in doing so, ultimately deplete the resource.").

136. CAL. FISH & GAME CODE § 8259 (2024).

137. *Infra* Part IV.

138. *Infra* Part IV.

139. *California Economic Impact Study 2022*, NAT'L ASS'N OF AM. WINERIES, https://wineamerica.org/economic-impact-study/california-wine-industry/ [https://perma.cc/C467-B3CR].

140. *Id.*

141. *Id.*

142. Joseph Peyrefitte, *Small California Wine Producers in 2019: An Industry Note*, 4 WINE BUS. J., no. 1, 2020, at 1, 2.

143. *See id.* at 4 Exhibit 4 (showing the ten largest U.S. wineries and their production volume).

the state does not allow the wine companies to ferment wine in the ocean, that part of the wine market will be dominated by foreign products, which may lead to vintners leaving California. Since there are so few vintners, even a small group leaving could have drastic economic implications. An exodus of the California wine companies would reduce the GDP, increase unemployment, and reduce the tax revenue of the state. None of this would be good for California.

IV. RECOMMENDATION

When thinking of a solution to this error in the law, it is important to consider the main purpose of both the Coastal Zone Management Act of 1972 and the California Coastal Act. Both focus on preserving the ocean while balancing the economic needs of the states.[144] If the California Legislature changed the law to allow vintners to ferment wine on the ocean floor, the law must also reflect a desire to protect the ocean. The California Coastal Act should be amended to specifically exclude food and beverage products from the development classification. Additionally, a new law should be created that would govern the food and beverage products by allowing these companies to use the ocean floor in a way that is similar to a campsite. Like a campsite rental, companies could get a permit to use the ocean floor. In return for using the ocean floor, companies would need to leave it the way they found it, much like how a campsite operates. Finally, to ensure the future of the ocean is not jeopardized, companies that would like to use the ocean floor should be required to do an environmental impact study to show that their use of the ocean floor would not negatively impact the ocean. Companies that would like to use the ocean floor should also be required to donate a portion of their profits to ocean conservation through environmental groups such as Ocean Defenders Alliance.

The first change that should be made is adding a provision to the California Coastal Act to address development. This should specifically include wording in the definition of development under Section 30106 of the California Coastal Act to exclude food and beverage products.[145] Food harvested from the ocean is already covered under the California Fish and Game Code,[146] but beverages are not listed in the statutes because there is no other beverage product being harvested from the ocean. It does not make sense that wine crates would fall under the category of "development."[147] This product would be better off addressed in the Fish and Game Code. The second change that should be made is revising the Fish and Game Code to address beverages, such as wine that is fermented underwater.[148] The Fish and Game Code already has strict regulations on permitting,[149] boundaries,[150] and environmental impacts.[151] Adding a statute to address underwater wine would easily fit with the other parts of the code.

144. *See supra* note 20 and accompanying text; *see also supra* notes 116–18 and accompanying text.
145. CAL. PUB. RES. CODE § 30106 (2023).
146. CAL. FISH AND GAME CODE §§ 1–16541 (2024).
147. *See* discussion *supra* Part III.
148. *See* discussion *supra* Part III.
149. CAL. FISH & GAME CODE § 8032 (2024).
150. *Id.* §§ 10900–13.
151. *Id.* § 15008.

This statute should closely follow Section 15400 of the Fish and Game Code, which addresses leasing state water bottoms.[152] This section of the code allows for renting state water bottoms specifically for aquaculture.[153] This statute requires anyone who is looking to get a lease to be approved by the Commission.[154] In return for being allowed to lease the ocean floor, vintners should be required to leave the area in the same condition as they found it. This would require them to remove all their crates and bottles after their lease is up, to ensure that the area is preserved. Additionally, their lease will only be approved after an environmental impact study is done of the area.[155] The environmental impact study could be short. This should be done annually and address any potential changes to the makeup of the ocean floor caused by the wine crates. If there is no harm to the marine life in the area and there is no change to the composition of the sea water such as wine spillage, the lease should be approved.

Additionally, this statute would follow the boundary limitations in Sections 10900 through 10913 of the Fish and Game Code.[156] This would ensure that endangered species who live in those areas are not harmed by underwater cages. To further protect the sea creatures from harm, these wine companies would need to design their crates in a way that prevents creatures from clinging to the bottles.[157] A provision should also be added in the statute that requires businesses seeking to lease the ocean floor for fermenting wine and other beverages to donate a percentage of their profits to ocean conservation. This would ensure that the ocean is protected in the present and future.

This money could specifically go to Ocean Defenders Alliance. Ocean Defenders Alliance is a company founded on the idea of clearing debris from the ocean.[158] One of the main things that this company pulls from the ocean is abandoned fishing gear, such as "line, nets of all kinds, ropes, and multiple types of traps."[159] If California puts wine crates under the same section as aquaculture and lobsters, it is only fitting that the money raised should go toward removing those kinds of equipment used to harvest the product.

This change would also limit the potential issues with ocean floor use, such as the tragedy of the commons because it would be highly regulated.[160] If a company had to apply for a permit, show the environmental impact, and donate a percentage of their profits to ocean conservation, only those dedicated to using the ocean in an environmentally friendly way would apply. Even if companies were solely in it for profit, they would still be bound by the environmental protections that would be enacted in this change.

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152. *Id.* § 15400.

153. *Id.* § 15400(a).

154. CAL. FISH AND GAME CODE § 15400(b)(1)–(10) (2024).

155. *Id.* § 15400(b)(1); *see also id.* § 15400(b)(4) ("Lessees shall establish best management practices, approved by the commission . . . . [that] shall include a regular monitoring, reporting, and site inspection program that requires at least annual monitoring of lease sites. . . .").

156. *Id.* §§ 10900–13.

157. How this would be accomplished is beyond the scope of this Note, but vintners who are adamant about using the ocean floor would likely find a way to make it work.

158. *Where We Work*, OCEAN DEFS. ALL., https://www.oceandefenders.org/what-we-do/california.html [https://perma.cc/RZX3-XQW7].

159. *Id.*

160. *See* Spiliakos, *supra* note 135.

V. CONCLUSION

The current laws regulating the use of the ocean floor are limiting the growth of the wine industry. While the intent of the federal law and state laws was to balance the economic needs of the citizens with the environmental concerns of the ocean, the implementation of the laws focused on the environmental concerns to the detriment of the economic needs of the citizens. In a world where underwater fermented wines are becoming increasingly popular, the wine state needs to amend its laws to prepare for a change in consumption. The FDA is warming up to the idea of fermenting wine underwater, and imports are likely to explode once the United States allows for its consumption. If California does not amend its law proactively, it will miss the window to capture the domestic market when the federal law changes. This may also lead California vintners to flee to other countries where they can ferment wine underwater.

This change should come by amending the California Coastal Act and the California Fish and Game code to reflect products being fermented underwater not as developments in the ocean, but rather as products being harvested from the ocean floor. If the Legislature looks at underwater crates like lobster cages, it is clear that a crate being stored on the ocean floor is not a "development." Inclusion of underwater beverages under the Fish and Game code would allow for vintners to experiment with underwater wines while balancing the desire to protect the environment. These vintners would be subject to the same regulations as those harvesting other products from the ocean.

Finally, vintners who use the ocean floor should be required to donate a percentage of their profits to ocean conservation through environmental groups such as Ocean Defenders Alliance, which would effectively balance the economic needs of the wine industry with the environmental concerns that come with working with the ocean. If the California Legislature acts now, the California economy can greatly benefit when the FDA eventually allows domestic underwater wine fermentation.