

Disposal of Expired Marine Pyrotechnic Flares

Water Quality Factsheet for Marina Operators and Boaters

California Coastal Commission's Water Quality Program

Revised Dec. 2019 by Vanessa Metz (original 2012 by Jack Gregg)

Note: This factsheet is a summary of information compiled by Coastal Water Quality Program staff. It is not a requirement by the Coastal Commission, and it may be superseded by site-specific information.

Introduction

The purpose of this factsheet is to provide information for boaters, marinas, and yacht clubs about proper disposal of expired marine pyrotechnic flares in California. Pyrotechnic flares are devices that produce a brilliant light or a plume of colorful smoke as a visual distress signal to attract attention in an emergency, and to help pinpoint the boater's exact location. The average shelf life for pyrotechnic devices is between 36 and 42 months from the manufacture date, because the effectiveness of the chemicals can break down over time. An estimated 174,000 pyrotechnic marine flares are generated each year by recreational vessels in California. With this large number of pyrotechnic flares expiring annually in California, increased public awareness of proper disposal options is needed.

Background

The U.S. Coast requires vessels longer than 16 feet operating on coastal waters, the Great Lakes, territorial seas, and waters directly connected to them (up to the point where the body of water is less than two miles wide) to carry Coast Guard approved visual distress signals, such as pyrotechnic flares. The two most commonly used types of marine pyrotechnic flares are handheld flares and aerial flares (which are fired into the air).



Expired flares collected in one season (2010) at Dana Point Harbor, California.

A minimum of three pyrotechnic flares approved for daytime use, and three flares approved for nighttime use, are required to meet the visual distress signal requirements. Boaters only need three pyrotechnic flares if the flares are approved for both daytime and nighttime use. Red-colored handheld and aerial pyrotechnic flares are approved for both daytime and nighttime use; however, orange-colored flares are approved for daytime use only.

Recreational boats less than 16 feet in length, open sailboats less than 26 feet in length and not equipped with propulsion machinery, and manually propelled boats are exceptions to these requirements. These vessels are only required to carry nighttime distress signals when operating from sunset to sunrise. Failure to have visual distress signals, or having only expired pyrotechnic flares on a vessel, could result in a \$1,100 fine.

Marine pyrotechnic flares must be in a usable condition, stowed where readily accessible, and not expired. According to U.S. Coast Guard regulations, the average shelf life for pyrotechnic devices is between 36 and 42 months from the manufacture date. The Code of Federal Regulations (33 CFR 175.125) states: "No person may use a boat unless each signal required by 175.110 is in serviceable condition and the service life of the signal, if indicated by a date marked on the signal, has not expired."

Are Marine Flares Considered to Be a Hazardous Material?

The California Department of Toxic Substances Control (DTSC) classifies pyrotechnic flares that will no longer be used for their intended purpose as hazardous waste, as they are toxic, reactive, and ignitable (as defined by hazardous waste regulations). Pyrotechnic flares are a safety hazard due to their combustible and reactive nature. Common ingredients in various types of flares include strontium nitrate, potassium perchlorate, strontium peroxide, magnesium, and black powder (a mixture of sulfur, charcoal, and potassium nitrate). Strontium nitrate and strontium peroxide are listed on the EPA's Toxic Substance Control Act Inventory List. Potassium nitrate and potassium perchlorate are known irritants, and perchlorate is a hazardous material also recognized as a water pollutant of concern. Other chemicals in flares, such as strontium nitrate, may also have an adverse impact on water quality.

What are the Disposal Options for Expired Marine Flares?

Expired pyrotechnic flares are considered household hazardous wastes and explosives, and must be disposed of at a permitted hazardous waste facility. State laws and regulations prohibit the disposal of hazardous waste in waterways, trash, and in municipal landfills. However, the lack of locations for proper disposal of expired marine flares is a problem in California.

Some counties will accept expired marine flares from the public as part of their Household Hazardous Waste (HHW) disposal events; however, typically, only residents residing in that county can use this service. Currently, only two counties (Alameda and Santa Cruz) accept expired marine flares at their HHW collection facilities. If your county's HHW facility does not accept expired marine flares, please contact your local

fire department or the DTSC hotline (800-728-6942) for assistance in identifying other disposal options.

Can a Boater Legally Transport Pyrotechnic Flares on Land?

California regulations allow individuals to hold, transport, or store up to 50 pounds of their own pyrotechnic flares (Health and Safety Code – Subsection b, Section 25218.5.1). This gives boaters the ability to transport flares from the point of purchase to their home and boat, or to an HHW facility for proper disposal. Haulers that collect, transport, or store pyrotechnic flares are required to be licensed for that purpose, and registered by DTSC to transport explosive waste to a permitted hazardous waste facility. If any unlicensed person accepts pyrotechnic flares for disposal, they are breaking the law.

Non-Pyrotechnic LED Distress Lights

The Coast Guard recently approved an LED visual distress signal device as a replacement for the three required pyrotechnic flares; currently, only one model of LED flare has been Coast Guard approved. This LED flare is approved for nighttime use, and for daytime use within three miles of the coastline when accompanied by an orange distress flag. The LED flare is much safer to operate than pyrotechnic flares, is visible at night for up to 10 nautical miles, lasts for up to 6 hours, and does not have an expiration date. As the LED flares do not contain hazardous materials, they avoid the issue of hazardous waste disposal.



The Sirius Signal SOS Distress Light is a Coast Guard approved LED alternative to pyrotechnic flares.

However, conventional pyrotechnic flares may be better at attracting attention during daylight hours; therefore a combination of non-pyrotechnic and pyrotechnic visual distress signals may be best, until a Coast Guard approved electronic distress signal for daytime use is on the market.¹

¹ California Clean Boating Network. [New LED flares minimize your pile of expired flares](#). The Changing Tide Newsletter, Summer 2016. (Page 1).

Recommended Practices for Marine Pyrotechnic Flares Disposal

For Boaters

Boaters can significantly reduce adverse impacts to coastal waters by using appropriate and legal methods to dispose of marine pyrotechnic flares that they no longer intend to use. Boaters are responsible for finding an HHW facility or other service that will accept marine flares. The following Best Management Practices (BMPs) are recommended for boaters to protect water quality from marine flares:

- Do not put flares in the regular trash or in the ocean; it is illegal.
- Donate expired flares to your local Coast Guard Auxiliary for use in training classes.
- Find out if your county's HHW facilities or local fire station will accept expired flares.
- Stay informed about legal methods for disposal of hazardous waste, and comply with these methods. Your marina or yacht club should be able to provide you this information. Obtain a copy of your marina's water quality protection policies, and follow them.

For Marinas and Yacht Clubs

The following BMPs are recommended for marinas or yacht clubs to protect water quality from marine flares:

- Ensure that marina tenants, contractors, and other marina workers are informed of legal methods for disposal of marine flares and other hazardous wastes, and that those methods are followed.
- Post signs directing boaters to local disposal facilities or services.
- Provide a copy of the marina's water quality protection policies to all slip-holders and contractors doing maintenance work on the marina property.
- Ensure that slip lease agreements contain requirements for the proper disposal of all wastes.
- Dispose of all wastes in accordance with all local, state, and federal laws and regulations.

Expired Marine Flares Disposal Working Group

This factsheet is based in part on information compiled in 2012 by the Expired Marine Flares Disposal Working Group, which was part of the [Marinas Interagency Coordinating Committee](#) for California's Nonpoint Source Program. Staff from the U.S. Environmental Protection Agency; Calif. Dept. of Boating and Waterways; Calif. Coastal Commission; Calif. Dept. of Toxic Substances Control; Calif. Dept. of Resources Recovery and Recycling; Calif. Emergency Management Agency; and the San Francisco Dept. of Public Health participated in this working group.