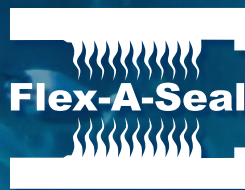
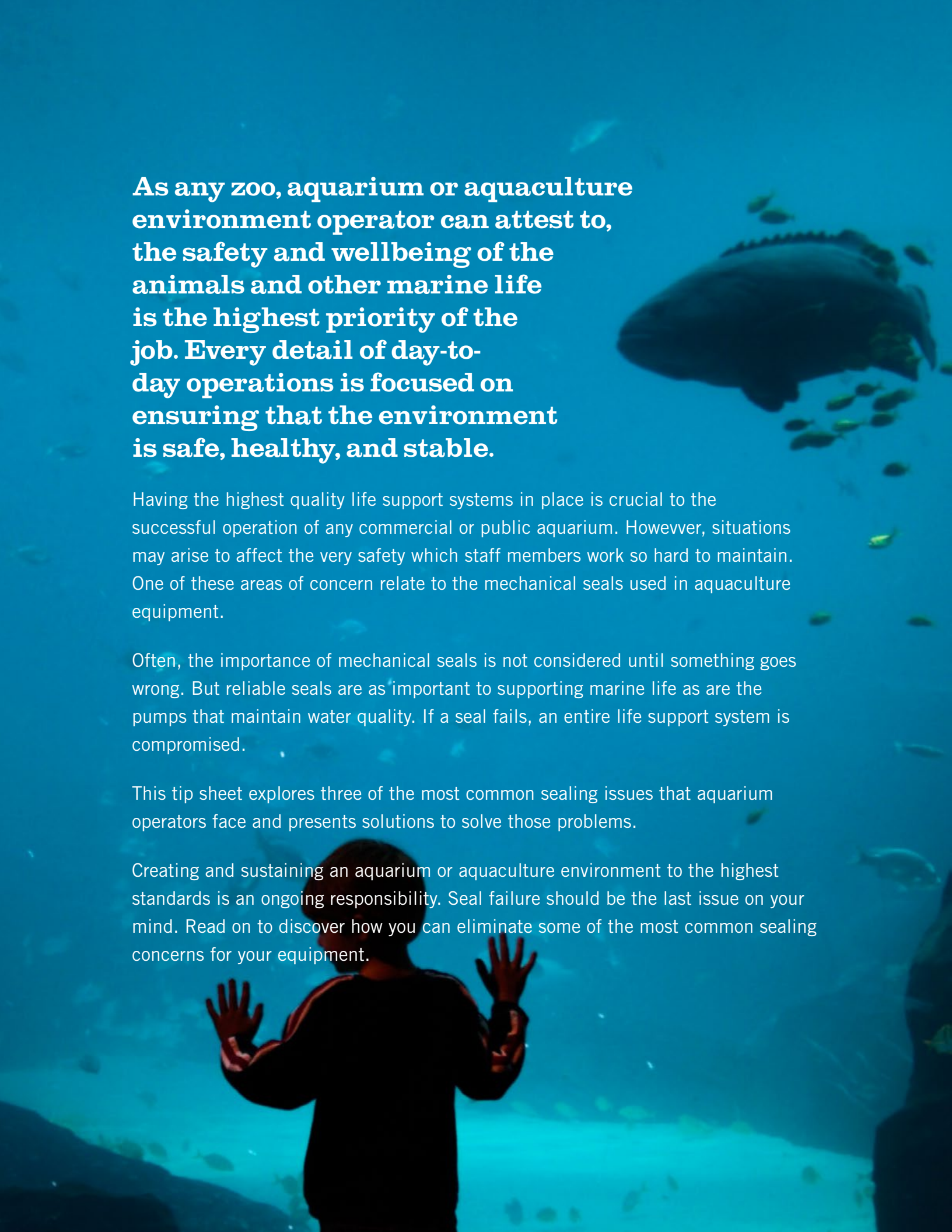


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# Aquarium Sealing **CHALLENGES** & How to Solve Them



A child is seen from behind, looking into a large aquarium tank. The tank is filled with blue water and contains a large jellyfish and several smaller fish. The child's hands are raised in front of them, as if they are reaching out to touch the glass. The background is a deep blue, suggesting an underwater environment.

**As any zoo, aquarium or aquaculture environment operator can attest to, the safety and wellbeing of the animals and other marine life is the highest priority of the job. Every detail of day-to-day operations is focused on ensuring that the environment is safe, healthy, and stable.**

Having the highest quality life support systems in place is crucial to the successful operation of any commercial or public aquarium. However, situations may arise to affect the very safety which staff members work so hard to maintain. One of these areas of concern relate to the mechanical seals used in aquaculture equipment.

Often, the importance of mechanical seals is not considered until something goes wrong. But reliable seals are as important to supporting marine life as are the pumps that maintain water quality. If a seal fails, an entire life support system is compromised.

This tip sheet explores three of the most common sealing issues that aquarium operators face and presents solutions to solve those problems.

Creating and sustaining an aquarium or aquaculture environment to the highest standards is an ongoing responsibility. Seal failure should be the last issue on your mind. Read on to discover how you can eliminate some of the most common sealing concerns for your equipment.

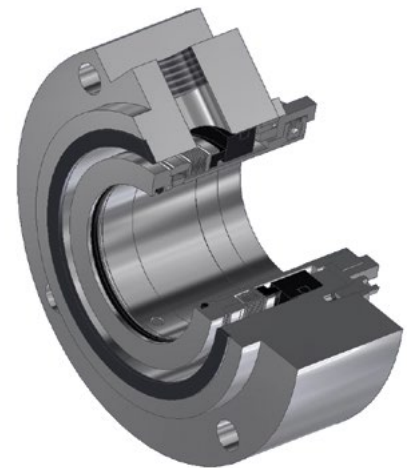
# Sealing Challenge #1: CONTROLLING CORROSION

Corrosion of aquarium equipment is a major industry concern. Whether freshwater or saltwater, aqua environments are one of the most challenging settings for industrial equipment; it is difficult to effectively maintain equipment that is constantly submerged in water. Metal components are consistently jeopardized by different salinity levels and water temperatures. The corrosion of mechanical seals is particularly concerning, since seal failure results in costly downtime and repairs, as well as endangers the wellbeing of the animals.

## SOLUTION

Products must be designed to combat the problem of corrosion in marine applications. For instance, the Fybroc® Division of Met-Pro Corporation expressly manufactures corrosion-resistant fiberglass pumps. These pumps are widely used in the aquaculture industry because they have proven to effectively contain and move sea water.

Flex-A-Seal has developed a mechanical seal designed specifically for use with Fybroc® pumps, making it ideal for the aquarium industry's sealing requirements. The rotating metal bellows RBX cartridge seal design ensures the wetted components (which are exposed to the product) are manufactured from corrosion-resistant alloy; any 316 stainless steel parts are isolated from the product. This seal is also available in other metallurgies and seal face materials to suit non-corrosive applications.





# Sealing Challenge #2: AVOIDING DOWNTIME

Equipment failure resulting in downtime is a serious challenge for aquarium operators, because it is much more than an inconvenience. Several critical elements are affected when a mechanical seal fails, including:

- ▶ Safety and wellbeing of animals and other marine life
- ▶ Lost revenue (whether from unscheduled staff downtime or closed attractions)
- ▶ Cost of repairs and replacement parts

The failure and replacement of a mechanical seal may also involve scheduling an equipment tear-down, which can be a time-consuming and expensive process.

## SOLUTION

Flex-A-Seal analyzed the common causes of mechanical seal failure in aquaculture environments. We then incorporated specific features into our RBX design to minimize these types of failures. These features include:

- ▶ Static O-rings to improve sealing capacity by eliminating hang-up and fretting
- ▶ Self-cleaning Hastelloy®-C rotating welded metal bellows
- ▶ Large vent/flush port that ensures a cool, long-lasting seal by eliminating air buildup
- ▶ Protection of the original pump shaft or sleeve with a split collar ring underneath the set screws, actually improving the life of the original equipment

In addition to the measures taken to avoid downtime, the RBX seal's simple, rugged cartridge seal design is easy to install by operators on-site, saving your facility time and money. As a supporter of the continuing education initiatives of Aquatic Animal Life Support Operators (AALSO), Flex-A-Seal has trained countless operators to perform the seal installation on their own.



## Sealing Challenge #3: REDUCING EQUIPMENT COSTS

As with any organization, cost reduction is a constant concern to the aquarium and aquaculture industry. Sealing equipment and replacement parts can add up quickly, so the goal is to decrease costs without compromising the quality or functionality of the seal.

### **SOLUTION**

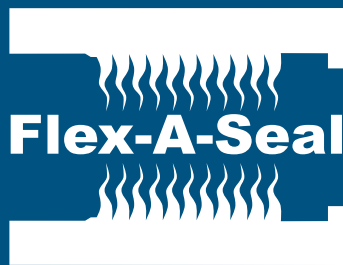
Flex-A-Seal offers an economical direct OEM replacement mechanical seal which utilizes the existing Fybroc® composite gland. This drop-in replacement seal is an upgraded version of the OEM component seal currently on the market and has the same installation requirements as the original.

Each time a new OEM component seal is attached onto the pump's impeller/integrated sleeve, small blemishes occur which can potentially damage the sleeve and compromise the seal's operation. To improve upon the existing OEM design, we have added our unique split collar to protect the shaft sleeve, replicating the benefit of the sleeve protection offered on our RBX cartridge seal. With the Flex-A-Seal split collar, the expensive impeller/sleeve will not be damaged.

# Solve Your **SEALING CHALLENGES**

with welded metal bellows designed, engineered  
& manufactured in the USA

(800) 426-3594



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