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Agenda item [[2]](#footnote-2) 2.1

Technical Domain / Task Number 2 …………………………………

Working Group WG2

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Bird deterrents and bird fouling alternative solutions

# Summary

This document was developed to put to the consideration of the committee the need to update the Guideline 1091 Edition 1.0 December 2012 – Bird Deterrents, with other solution alternatives analysed to resolve an specific situation that affects Aids to Navigation when they are covered by the guano of bird colonies. Research of possible solution comprehend different lines of action such as:

Use a bird repellent gel, installing an electronic ultrasonic bird deterrent, use of a disposable self-adhesive vinyl product, change the paint scheme, for example: double treatment and colorless paint to protect the hull surface (anti-graffiti) and the implementation of an anti-graffiti colorless paint to protect the hull surface (anti-graffiti).

## Purpose of the document

This knowledge and successful experience could be merge with Guideline 1091 Bird Deterrents to share with AtoN community an integral tool for analyse the guano of bird problematic.

## Related documents

Guideline 1091 Edition 1.0 December 2012 – Bird Deterrents.

2nd Prize in Best Practice Competition, Conference Korea 2018 - Development and implementation of technical, economical and environmentally friendly solutions to cope bird´s guano on aids to navigation.

# Background

This recompilation of different experiences and trials resume the work developed with the AtoN maintenance crew and external personnel that could provide alternative experiences and visions from different industries.

This interdisciplinary team studied the dynamics of maintaining a signaling system; scrutinizing each alternative proposed, weighed advantages and disadvantages searching to find the best solutions available for each problematic with bird´s guano, considering topics as: reduced work time, level of service, weather conditions, type of Aids to Navigation, type of buoy tender, human resources, suitability of the crew, impact of bird guano on Aids to Navigations and their elements and technical and economically solution should be feasible in case its implementation is massive.

## Solutions analyzed

Research and consequently developed solution alternatives are detailed below:

* Different tests were carried out with house hold and industrial cleaning products available in the market without satisfactory results since the guano on the deck of the hull could not be removed successfully.
* A bird repellent gel was used to keep away the birds that affect the hulls.
* The feasibility of installing an electronic ultrasonic bird deterrent was also addressed.
* The use of a disposable self-adhesive vinyl product that can be removed on each deck-cleaning operation was also tested.
* The problem was communicated to the usual paint supplier to obtain some advice regarding a viable solution with a different paint scheme, for example: double treatment.
* Another study was conducted to find out how other industries protect their assets from intentional damage (urbangraffiti). From this, we learned that the railway industry had managed to reduce and even neutralize damage caused by urbangraffiti on locomotives and carriages: by painting the surfaces with a colorless layer that protects the final coating anfacilitates the removal of excrement and spray paint.
* It should be noted that each country has its own regulations and laws regarding bird protection (especially pigeons); in this sense, the solution had to be environmentally sustainable.

## Bird repellent gel

There is a wide range of market-ready products that cause insects, birds or animals to stay away, become unstable or stick to the surface.

Bird repellent gel as it is the most effective and sustainable solution, easily applied on a clean dry surface with a palette knife, paint brush or roller. Non-toxic, it can be handled without protection and is harmless to birds. It is designed to affect birds’ senses and produces instability due to the fact that the heat felt in the birds’ claws prevents them from clinging firmly onto the surface, so they fly away.

## Ultrasonic bird deterrent

Whereas electronic repellers may be a practical solution when fixed to small buoy clusters liable to be affected by bird guano, they are bound to be ineffective in massive cases of implementation.

The appliance runs on a 12 Vcc supply and consumes 0,5 Amp/hour. Its size and weight are compatible with devices viable to be installed on floating Aids to Navigation. Consumption of the lighting system and complementary AIS-AtoN were assessed in order to resize the energy system in case it should be necessary.



1. Port buoy with ultrasound device

## Vinyl self-adhesive protection

The dry run for this solution was brief due to technical and operative difficulties experienced during the application of this vinyl film.

During the test, the body of a buoy was coated with a patterned self-adhesive vinyl. This round-shaped film was heat-transferred onto the surface, so that it would neatly adopt the shape of the structure.



1. Installation of vinylic self-adhesive protection on the hull

## Modification of the paint scheme

Working together with paint suppliers and technical staff from different industries could be modify the final stage of the painting process in order to reduce adherence and obtain a vitrified surface, easy to wash and onto which excrement would not stick.



1. Buoy with double curing paint treatment after pressure wash

## Colorless painting – Anti-graffiti

A colorless paint that acts as an anti-graffiti coating can be applied on clean surfaces with a paint brush, roller, blowtorch or sprayer and is touch-dry after 15 to 30 minutes, depending on the ambient temperature and humidity, requiring approximately ¼ liters per buoy.

The action plan of systematically cleaning and subsequently in-situ applying the protective colorless coating on the hull of Aids to Navigation affected obtain satisfactory results. Although bird guano is virtually inevitable for all aids to navigation, cleaning and maintenance procedures can be certainly improved.



1. Details of buoy hulls coated with anti-graffiti paint

# Action requested of the Committee

The committee is requested that this Input Paper, a summary of the work presented in the Good Practices Competition, be considered to update the Guideline 1091 with the objective that all the alternatives of possible solution to the problem of bird guano be contemplated.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)