

**COVID-19 & diving –
International
Recommendations Update**

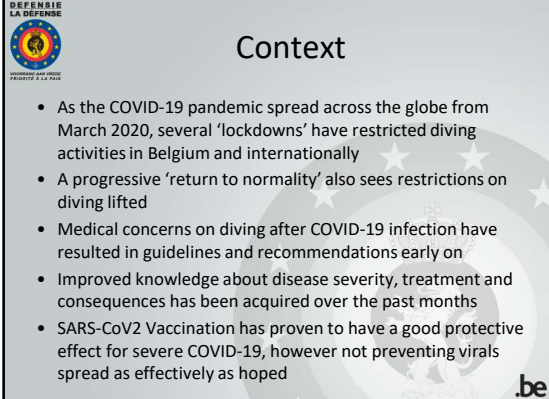
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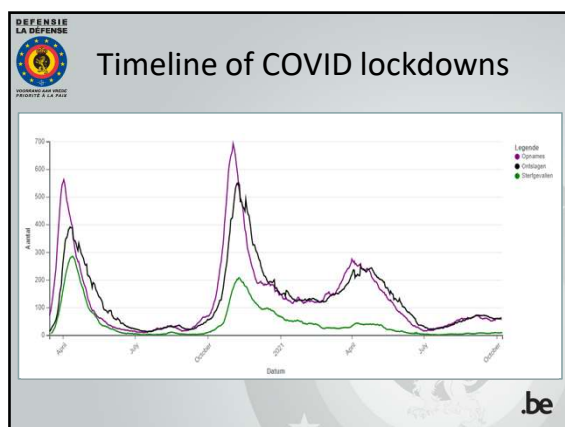
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Context

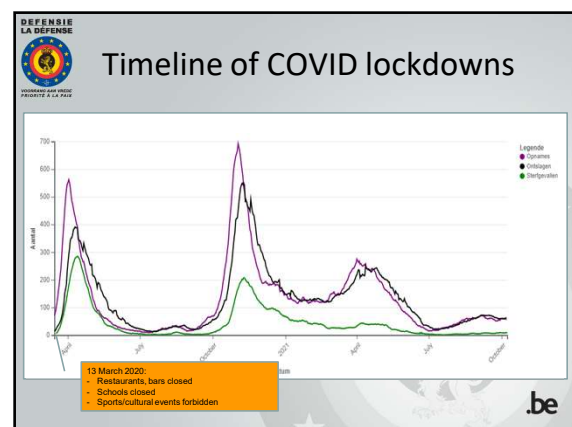
- As the COVID-19 pandemic spread across the globe from March 2020, several 'lockdowns' have restricted diving activities in Belgium and internationally
- A progressive 'return to normality' also sees restrictions on diving lifted
- Medical concerns on diving after COVID-19 infection have resulted in guidelines and recommendations early on
- Improved knowledge about disease severity, treatment and consequences has been acquired over the past months
- SARS-CoV2 Vaccination has proven to have a good protective effect for severe COVID-19, however not preventing virals spread as effectively as hoped



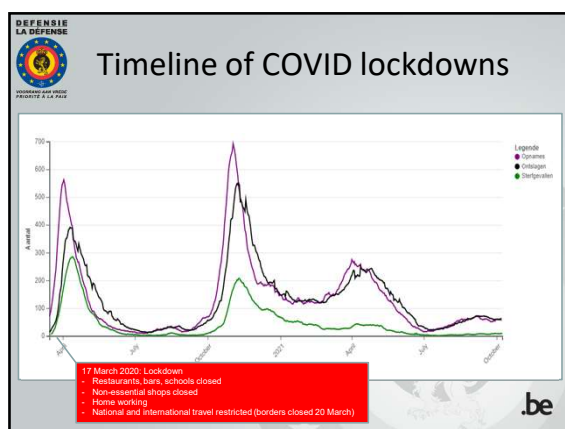
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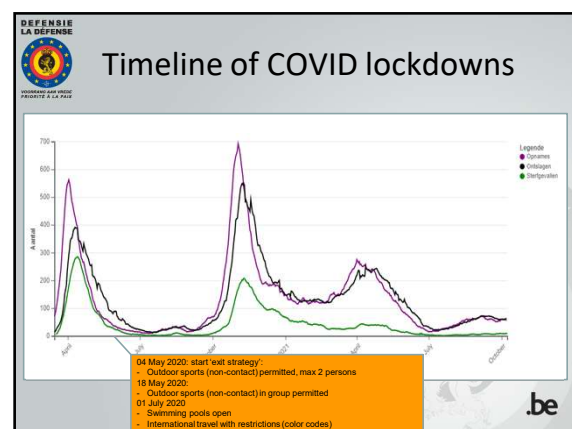
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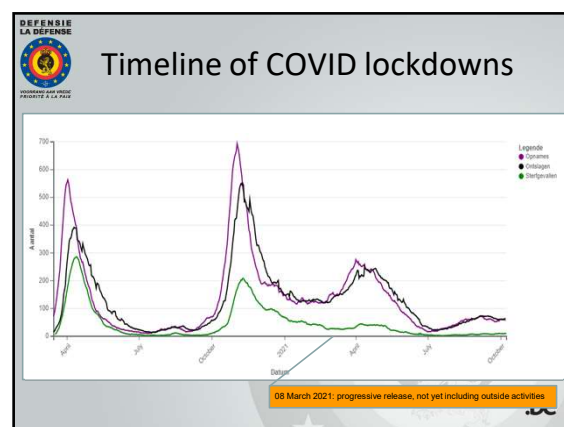
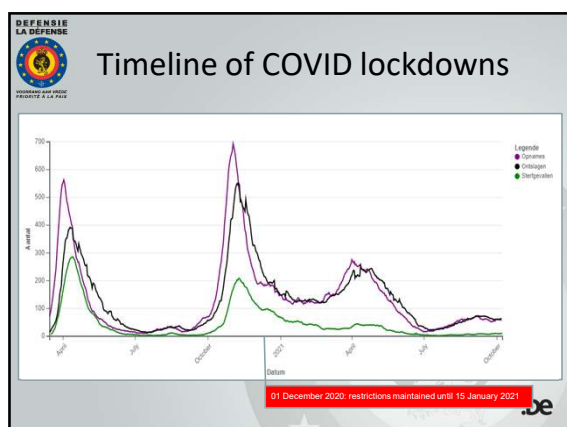
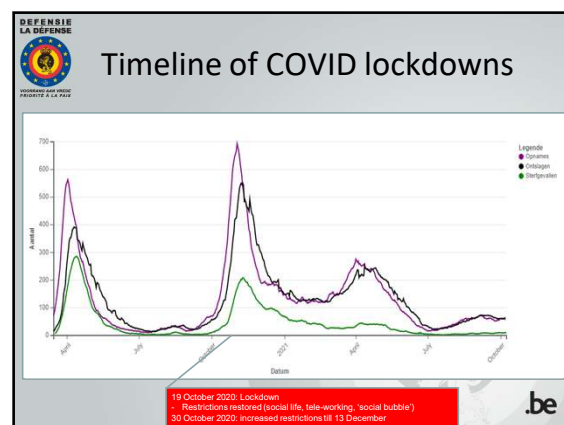
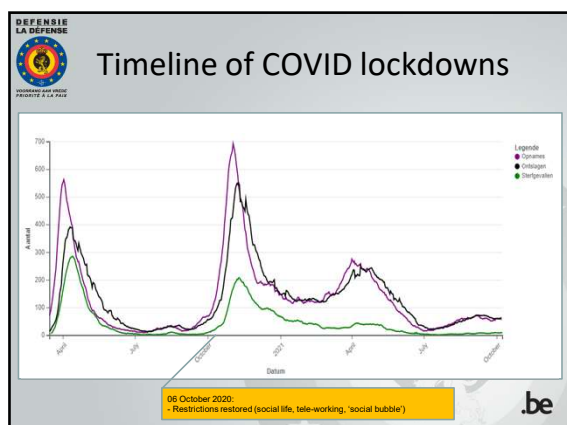
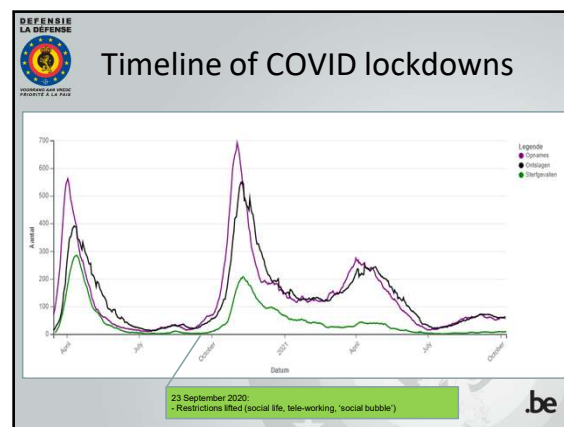
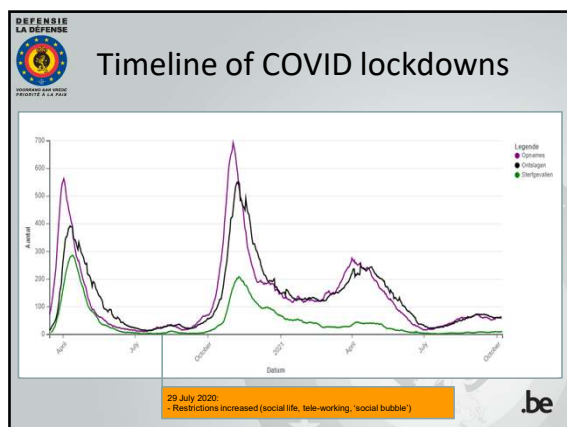
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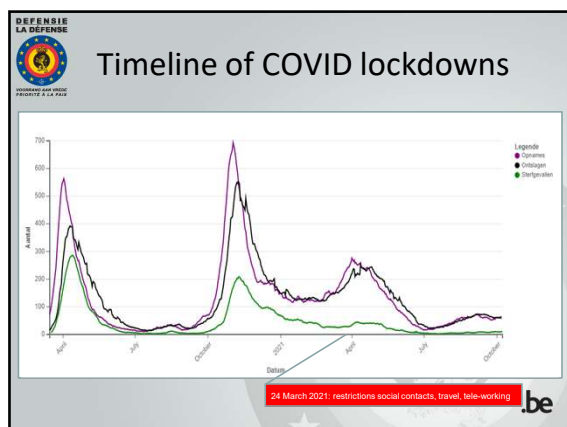


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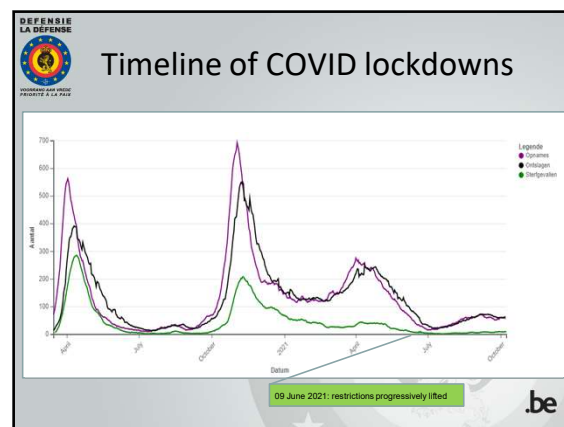


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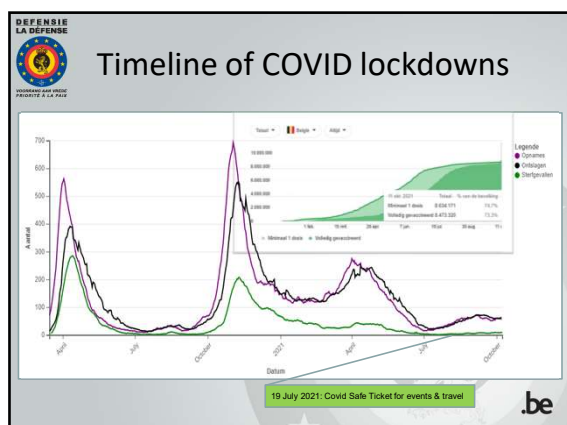




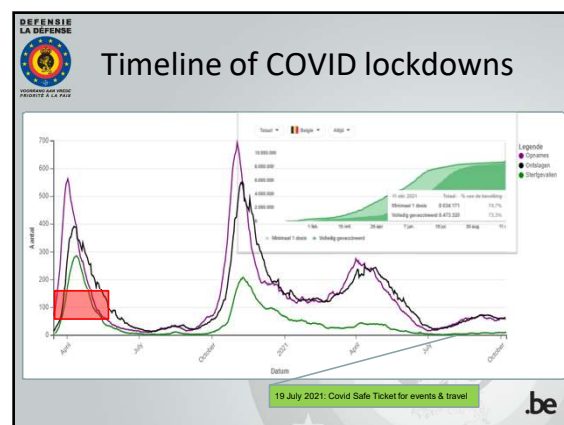
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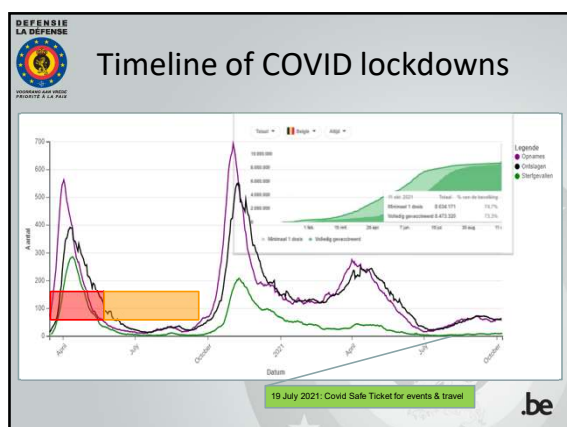
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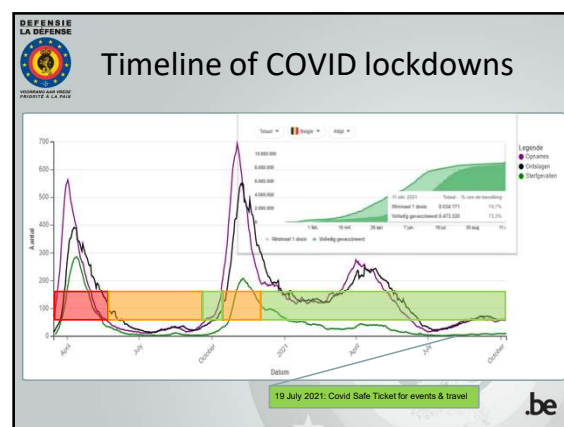
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DEFENSIE LA DEFENSE
MINISTERIE VAN VERKEER EN INFRASTRUCTUUR
PRIMAAT A LA PAIX

Recommendations

- Regarding diving activity
 - SBMHS-BVOOG / ACHOBEL / Diving Federations
 - DAN
- Regarding resuming of diving after COVID
 - SBMHS-BVOOG
 - UCSD
 - EUBS
 - UKDMC
- Other recommendations

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Diving Activity

12 April 2020:

Observations:

- Social distancing impossible
- Emergency First Aid & treatment very difficult
- Duration of contamination risk ?
- Unknown short-term & long-term effects of COVID-19

Recommendations:

- Waiting time after COVID: 1 to 3 mths
- After severe COVID: medical evaluation before resuming
- Risk for DCS unknown → ultra-conservative diving advised

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Diving Activity

30 April 2020:

DAN Europe : '10 Recommendations on Risk Prevention and Mitigation'

COVID-19 AND DIVING OPERATIONS
TO RECOMMENDATIONS ON RISK PREVENTION AND MITIGATION

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Diving Activity

30 April 2020:

DAN Europe : '10 Recommendations on Risk Prevention and Mitigation'

18 page document

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DEFENSIE LA DEFENSE
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Diving Activity

ACHOBEL

5 May 2020:

Observations:

- Social Distancing almost impossible
- Emergency First Aid difficult
- Treatment of diving pathologies near impossible

Recommendation:

Even if not forbidden explicitly, do not dive

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Diving Activity

05 + 25 May 2020:

LIFRAS + NELOS + VVV Medical Committee Collaboration

Recommendation:

- Waiting time after COVID: 45 days to 3 months
- Only dive when feeling OK
- Dive safely
- Questionnaire pre-dive proposed

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Diving Activity

21 May 2020: ECHM - EUBS

Recommendations:

Every dive center or diving team should conduct an analysis of risk prevention and mitigation using published recommendations (for example [2]). Generally, it is recommended:

1. **To continue the social distancing measures** as required by the local authorities also during diving operations (mostly during the surface phase of diving operations).
2. **To disinfect private and rental equipment**, including emergency oxygen units, with appropriate disinfectants covering broad spectrum of germs, including fungi, bacteria, spores and viruses.
3. **To avoid exchange of personal breathing systems** except in real emergency situations.
4. **To plan any "breathing systems sharing" exercises** in such a way that **personal protection is ensured**.

EUBS & ECHM position statement
on recreational and professional diving after the Coronavirus disease (COVID-19) outbreak

Since countries in Europe have started to release the first preventive measures taken to control the spread of SARS-CoV-2 and COVID-19 disease, in a world, not depending on the epidemiological situation in the region, the position of EUBS/ECHM has been determined on the basis of the recreational and professional diving and performing diving medical examinations during the Coronavirus disease (COVID-19) outbreak and is updated to reflect the new situation in our region [2].

Notably, the following recommendations are given for both recreational and professional diving after the Coronavirus disease (COVID-19) outbreak:

It is expected that the virus SARS-CoV-2 will persist in the community, leading to a continued risk of transmission between persons sharing in their proximity, or sharing common personal equipment. From this point on, diving team should conduct an analysis of the prevention and mitigation using published recommendations (for example [2]). Generally, it is recommended:

1. To continue the social distancing measures as required by the local authorities also during diving operations (mostly during the surface phase of diving operations).
2. To disinfect private and rental equipment, including emergency oxygen units, with appropriate disinfectants covering broad spectrum of germs, including fungi, bacteria, spores and viruses.
3. To avoid exchange of personal breathing systems except in real emergency situations.
4. To plan any "breathing systems sharing" exercises in such a way that personal protection is ensured.

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Diving Activity

Evolution of recommendations:

- **SBMHS-BVOOG : no change**
- **DAN Europe : no change**
- **ACHOBEL : last update 01/09/2021**
 - Update availability of hyperbaric centres in Belgium
 - Continued urge for ultra-conservative diving
- **LIFRAS – NELOS – VVV : last update 21/3/2021**
 - Maintain social distancing
 - Restrict dive depth and time after COVID infection
 - Resume diving progressively (3 'warm-up dives') but after that, 'usual' diving permitted
 - CPR changes: no rescue breathing
- **ECHM-EUBS : no change**

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Resuming of diving after COVID

12 April 2020: BVOOG

Recommendations:

- Asymptomatic COVID (PCR test) : 1 month waiting time
- Symptomatic COVID: 3 months waiting
- After hospitalisation (pulmonary/cardiac/other reasons): after 3 months, full medical checkup
- Pulmonary oxygen toxicity after COVID: unknown – so avoid $\text{PpO}_2 > 1.3 \text{ ATA}$ for prolonged time (technical diving)
- Pulmonary shunts after COVID: unknown – so avoid decompression diving

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Resuming of diving after COVID

08 May 2020: UC San Diego

Recommendations:

- Asymptomatic COVID or PCR test+ : new routine medical examination
- Mild COVID (no hypoxia, normal or no chest imaging) (Category 1): + spirometry, chest X-Ray or CT scan, exercise test SaO_2
- Moderate COVID (O_2 R/ required, hospitalisation, chest CT abnormal, no cardiac involvement) (Category 2): + ECG, echocardiogram
- Severe COVID (assisted ventilation, cardiac involvement, thromboembolic event) (Category 3): + exercise echocardiogram
- Delay: return to baseline exercise tolerance

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Resuming of diving after COVID

21 May 2020: ECHM - EUBS

Recommendations:

1. **Asymptomatic, PCR+ divers:** at least one (1) month before resuming diving
2. **Symptomatic COVID-19, but not requiring hospitalization:** at least 3 months before fit-to-dive clearance conducted by a diving medicine specialist
3. **Hospitalized with or because of pulmonary symptoms:** at least 3 months before fit-to-dive clearance conducted or coordinated by a diving medicine specialist, with complete pulmonary function testing (at least FVC, FEV1, PEF25-50-75, RV and FEV1/FVC, and exercise test with peripheral oxygen saturation measurement) as well as a high-resolution CT scanning of the lungs.
4. **Hospitalized with or because of cardiac problems:** at least 3 months before fit-to-dive clearance conducted or coordinated by a diving medicine specialist with cardiac evaluation, including echocardiography and exercise test (exercise electrocardiography).

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Resuming of diving after COVID


14 Jun 2020: UK DMC

Note: 'hospitalisation' = +50

Likely risk	Score	Recommendation
Very Low	Less than 0	No requirement for review, note unknown risks
Low	0	Advice of unknown risks of asymptomatic COVID-19 lung damage
Moderate	1-7	Complete resolution of COVID-19 related symptoms
High	8-47	Complete resolution of COVID-19 related symptoms
Very High	>48	Delay assessment for one year

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Resuming of diving after COVID

Evolution of recommendations:

- SBMHS-BVOOG : **no change**
- UC SD : **no change**
- ECHM-EUBS : **no change**
- UK DMC : **no change**
- LIFRAS – NELOS – VVW : last update 21/3/2021
 - Group 1 – severe COVID or decreased exercise tolerance:
 - 3 months after recovery or start decreased exercise tolerance
 - Medical evaluation by diving medicine specialist
 - Questionnaire + exercise test; lung function test, chest CT (decided by MED)
 - Group 2 – mild/moderate COVID or asymptomatic PCR+
 - 14 days after contact or PCR test
 - No medical examination required, self-evaluation questionnaire
 - Group 3 – all others: no restrictions

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Discussion

- No real change in recommendations by international scientific organisations over 2021
- Relaxation of medical and diving restrictions by Belgian Diving Federations
 - 2021: already multiple severe DCS treated in Belgium and abroad
 - At least 2 deaths of divers with DCS who were COVID positive at time of dive
 - Several (more) cases of Immersion Pulmonary Edema reported (COVID-related ?)

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Discussion

- Social Distancing measures still difficult to maintain
 - Unclear or confusing federal / regional / local requirements
 - Equipment care guidelines difficult to follow (cfr DAN Europe booklet)
 - Variability in group composition impossible to control
 - Vaccinated divers
 - COVID-recovered divers
 - 'Anti-vaxer' divers
- Diving restrictions: what is 'normal' 'recreational' diving ?
 - Decompression diving ?
 - Technical diving ?
 - Divers 'invulnerability' (until accident strikes...)

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Proposals

- **My personal view !**
- Define 'recreational diving' differently, as in:
 - No-decompression diving
- Re-define 'conditions' for all other diving, as in:
 - Advanced risk assessment training
- Stimulate 'safe COVID behavior':
 - Mandatory use of Covid Safe Ticket ?

We all would like COVID to go away, but...

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