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Application of the Danish EPA's Marine Model Complex and Development of a Method Applicable for the River Basin Management Plans 2021-2027

Management Scenario 2d – Land-based nutrient scenarios (updated BSAP ceilings)

Miljø- og Fødevareministeriet
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Prepared for Danish EPA (Miljøstyrelsen, Fyn)

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Eelgrass in Kertinge Nor
Photo: Peter Bondo Christensen

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Preface

This report is commissioned and funded by the Danish Environmental Protection Agency (EPA). The data, methods and results included in the report are intended to be an integrated part of the material behind the Danish River Basin Management Plans (RBMP) 2021-2027.

The work reported was managed and performed by DHI and AU/DCE. During the project, a steering committee followed the development, and was involved through dialogue and follow-up on progress, etc. The steering committee consisted of members from the Danish Ministry of Environment and Food (MFVM), the Danish EPA (MST), DHI and AU.

In addition, a follow-up group consisting of members from The Danish Agriculture & Food Council, SEGES, Sustainable Agriculture (BL), the Danish Society for Nature Conservation, the Danish Sports Fishing Association, Danish Fishermen PO (DFPO), the Danish Ports, and KL/municipalities was affiliated with the project. The follow-up group has been continuously informed about the progress of the project at meetings convened by the MFVM.

Choice of methods, data processing, description and presentation of results have been solely AU's and DHI's decision and responsibility. A draft version of this report has been reviewed by MST and the follow-up group.

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1 Introduction

When preparing the Danish River Basin Management Plans 2015-2021 (RMBP 2015-2021), DHI and Aarhus University (AU) developed a number of mechanistic (DHI) and statistical (AU) models that were used for calculating chlorophyll-a target values defining the threshold (GM) between 'Good Ecological Status' (GES) and 'Moderate Ecological Status'. The models were also used for calculating Maximum Allowable Inputs (MAIs) of total nitrogen (N) from Danish catchments based on the GM threshold value and a proxy for eelgrass depth limit. Hence, the development aimed at both the model development and the development of a method for calculating the MAIs.

As part of the political, regulatory package 'The Food and Agriculture Agreement from 2015' an international evaluation of the procedures used in the RBMP 2015-2021 was conducted. The evaluation was finalised autumn 2017 with a report (Herman *et al.* 2017) including a number of recommendations for improving the scientific background behind the RBMP 2021-2027.

To follow up on the international evaluation, the Danish EPA facilitated a range of research and development projects (R&D) projects with the overall aim of developing methods to calculate robust, transparent and differentiated chlorophyll-a reference values (and corresponding GM values) and MAIs in as many water bodies as possible for implementation into the RBMP 2021-2027.

Two central R&D projects relate to the continued model development in the assessment of reference chlorophyll-a values (and corresponding target values) and final MAI calculations. Other projects support different aspects of the final MAI calculations, but here we focus on the following two central R&D projects:

- 'Recommendations for the continued development of models and methods for use in the River Basin Management Plan 2021-2027. Follow-up on the international evaluation of marine models behind the River Basin Management Plan 2015-2021' (Erichsen & Timmermann 2018)
- 'Application of the Danish EPA's Marine Model Complex and Development of a Method Applicable for the River Basin Management Plans 2021-2027'.

The outcome of the above research projects is a set of MAIs based on a range of scenarios reflecting different assumptions regarding future developments in nutrient loading from neighbouring countries and the atmosphere as described in Erichsen *et al.* 2020. In the present technical note, the assumptions behind management scenario 2d and corresponding results are described. In management scenario 2d it is assumed that the Baltic Sea countries are adapting and fully implementing the updated BSAP targets (being negotiated during autumn 2020) and that the RBMP (2015-2021) and NEC directive are fully implemented.

2 Preconditions for MAI Calculations

The Danish MAIs will, among other things, also depend on future loadings from neighbouring countries and atmospheric N-depositions as described in more detail in Erichsen *et al.* 2020. In addition, some water bodies may also respond to Danish land-based P loadings, which is why one set of Danish land-based N-MAIs corresponds to a set of Danish land-based P-MAIs.

In order to calculate a set of Danish land-based N-MAIs with the developed models, we need to make assumptions on future loadings and management strategies from neighbouring countries (management scenarios), and Danish land-based P loadings.

With respect to reductions in neighbouring countries, the Danish EPA has defined a set of preconditions to be used for constructing management scenarios defining potential developments in future non-Danish land-based loadings and atmospheric deposition. For each scenario, Danish land-based N-MAIs are calculated based on 0%, 10%, 20%, 30% and 50% Danish land-based P reductions, respectively.

In this technical note, we have not assessed the feasibility of the scenarios defined by the Danish EPA, but solely provided N-MAIs that will ensure that the targets are reached given that the preconditions related to nutrient loading from other countries, atmospheric N deposition and P loading from Danish catchments are fulfilled.

2.1 Management Scenario Definitions

As mentioned above, the Danish EPA has defined a set of assumptions regarding nutrient inputs from other countries and the atmosphere to be used as preconditions for the Danish land-based N-MAI calculations. The preconditions are grouped into three management scenarios and one scenario related to the interpretation of the Water Framework Directive (WFD-scenario). The different assumptions are described in general terms in Erichsen *et al.* 2020, whereas the present technical note describes management scenario 2d in more detail (also see 'bold' description below).

2.1.1 Management Scenario 2 – Regional Treaties and RBMP 2015-2021

The second group of scenarios encompasses alternative preconditions for the land-based loadings from neighbouring countries that are not based on adopted treaties. The assumptions include:

a) Neighbouring countries are assumed to have had the same percentage of nutrient reduction as Denmark when Danish land-based N-MAIs are reached. The reduction percentage is relative to the basis period 1997-2001.

b) Neighbouring countries are assumed to have the same area-specific anthropogenic loadings (kg/ha) as Denmark when Danish N-MAIs are reached.

c) Loadings from neighbouring countries are unchanged compared to the present-day loadings (2014-2018).

d) Danish land-based N-MAIs assuming updated BSAP targets. A new set of targets is being developed in HELCOM and will be adopted by the end of 2021.

e) Additional Wadden Sea P-reductions[1]

[1] This scenario is in addition to what has been reported in previous technical notes (e.g. Erichsen *et al.* 2020) and is a supplement to the series of management scenarios.

For the above five sub-scenarios, the atmospheric deposition will be kept as described in management scenario 1, i.e. full implementation of the NEC-directive with respect to atmospheric N-deposition (see Erichsen *et al.* (2020) for details).

2.1.2 Scenario Loadings

The full overview of the nutrient reductions applied for management scenario 2d in other countries than Denmark, and atmospheric depositions are summarised in Table 2-1, and explained in short in the following sections.

Updated Baltic Sea Action Plan (BSAP)

With respect to management scenario 2d, updated ceilings from the BSAP of land-based nutrient loadings around the Baltic Sea, are applied. During autumn 2020 updated ceilings behind the BSAP are being negotiated, and these data are included in the present management scenario.

For this scenario, the updated BSAP is implemented in Baltic Proper (BAP) and Danish Straits (DS) for all countries besides Denmark and Germany. Germany has adopted stricter reductions as part of the German RBMP 2015-2021. The German MAIs are described in the following section.

The updated BSAP consists of national MAIs including both land-based nutrient loadings as well as atmospheric depositions. For the present calculation of Danish land-based nutrient MAIs, the NEC directive will form the foundation for atmospheric depositions why we need to exclude the atmospheric part of the updated BSAP in the present dataset. This is done by calculating the fraction of atmospheric depositions in the baseline period (the BSAP baseline period corresponds to 1997-2003) and assuming that the fractions are still valid. Hence, the country-specific MAIs are determined by subtracting the atmospheric fraction of the updated total ceiling (CART). This is done for both TN and TP although P-depositions are relatively insignificant.

The present-day average loading (average of 2014-2018 loadings) is then compared to the land-based MAIs within the two basins Baltic Proper (BAP) and Danish Straights (DS) and converted into a need for reduction (in %). This estimation is done excluding Danish land-based loadings, as they are the target of the present exercise.

RBMP 2015-2021

As mentioned above, Germany is the only country (besides Denmark), that has adopted N reductions that are stricter than the CART defined in the BSAP.

According to the German RBMP 2015-2021, nutrient targets for TN are defined as average TN concentrations of 2.6 mg N/l in rivers discharging to the Baltic Sea and 2.8 mg N/l in rivers discharging to the North Sea (COWI 2018). For TP, no new targets have been defined in the RBMP 2015-2021 why German TP concentrations in rivers discharging to the North Sea are similar to present-day TP concentrations, and TP concentrations in rivers discharging to the Baltic Sea follow the reductions determined by BSAP.

Based on Gadegast & Venohr (2015), the average concentration in the rivers discharging to the North Sea was 4.04 mg N/l in 2005 why a change in concentrations to 2.8 mg N/l corresponds to an average reduction of 31% of German land-based N-loads. For comparison, COWI (2018) estimated a reduction need from German rivers of 30-48% based on 2001-2005 loadings. Here we use the 31%, as the data reported in Gadegast & Venohr (2015) also relates to the reductions used for defining reference loadings from German and Dutch rivers discharging into the German Bight.

The 31% reduction is applied to all German rivers discharging to the North Sea as well as other North Sea rivers (due to lack of knowledge) in the simulations. Applying the same reduction on all North Sea rivers is an assumption; however, as the German rivers are the governing source of nutrients impacting Danish waters, it is considered to be a good assumption.

Concerning concentrations in rivers discharging to the Baltic Sea, COWI (2018) reports a target of 2.6 mg N/l, and according to COWI (2018), this corresponds to a reduction of 44%. For management scenario 1, we adopt this reduction from German rivers discharging to the Baltic Sea.

Allocation of Reductions

To estimate the dose-response, ie. how much the GES indicators respond to a change in nutrient load, we used model simulations based on a 30% nutrient reduction (N or P on land-based, respectively, and atmosphere N load), with the exception of Danish land-based nutrient loadings. These simulations provided us with information on the dose-response for each of the GES indicators for the 30% reduction. Using these results, we can estimate the dose-response to a given reduction in local nutrient loading to the Baltic Proper (BAP) and Danish Straits (DS) depending on the source of the nutrient load and the location of the responding GES indicator.

According to HELCOM (2020), we can allocate reductions from BAP to DS and estimate the resulting dose-response from the above scenarios. However, we will have to assume that the impact from reductions differs between the Danish water bodies, as, eg. German reductions will have a profound impact on Flensburg Fjord, whereas the impact on the Sound is regarded as less profound. Hence, we operate with different reductions depending on the individual water bodies.

Assuming no difference in impact from reductions in BAP and DS, the combination of BSAP and German RBMP 2015-2021 equals a reduction of 4% for TN loadings and 27% for TP loadings.

Assuming difference in impacts as described in HELCOM (2020)[2] the corresponding TN reductions equal a 35% reduction whereas a full impact from German RBMP 2015-2021 equals a reduction of 44%.

As HELCOM (2020) defines a reduced impact from reductions as we move from one water body to another (e.g. from BAP to DS), we need to distribute the above reductions from Germany and other countries. This distribution is done according to Figure 2-1 and Table 2-1.

[2] Here we assume that the difference in %-reductions can be translated into a %-reduction according to HELCOM (2020). In HELCOM (2020) the effects, however, relate to tons of N and P why this is not entirely correct. As we operate in %-reductions this assumption will likely overestimate the effects of the German reductions.

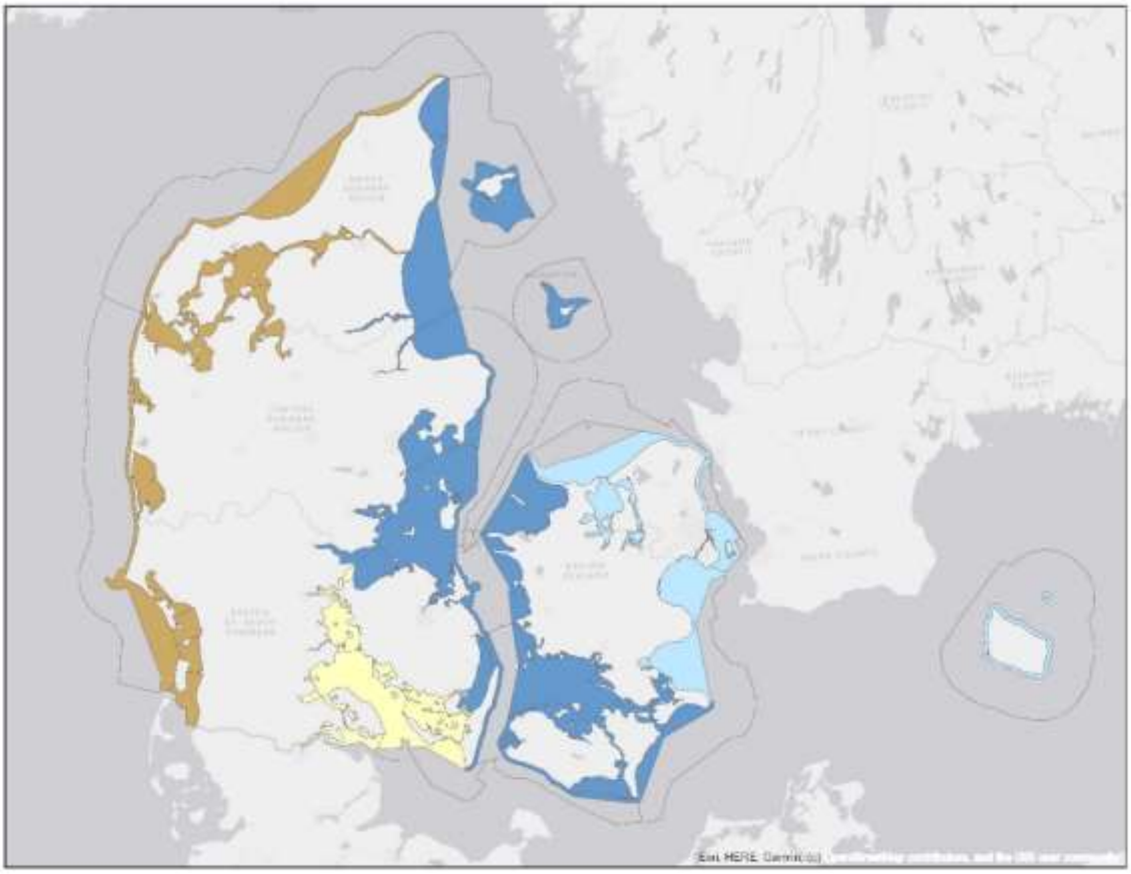

Figure 2-1 Distribution of reductions applied in scenario 2d. Nutrient reductions resulting from the German implementation of the RBMP (2015-2021) to the North Sea and Baltic Sea are applied in water bodies marked with brown and yellow, respectively. Nutrient reductions resulting from the implementation of the BSAP to the BAP and DS are applied to water bodies marked in light blue. In dark blue areas, BSAP reductions to BAP and DS are applied after taking into account the effect of transport processes accounted for by the HELCOM (2020) allocation scheme.

NEC-Directive

According to Blicher-Mathiesen & Sørensen (2020), the reductions in atmospheric N deposition after full implementation of the NEC-directive altogether amount to 16% or a 10% reduction in 2027, if the different countries' predictions are implemented. The full reduction of 16% is used for management scenarios 1 and 2, whereas the prediction of 10% reduction is used for management scenario 3a (see Erichsen *et al.* 2020 for details).

Data are delivered by AU, and the reductions are resolved on an overall water body scale and implemented in the Danish land-based N-MAIs calculations (see Figure 2-2 for data).

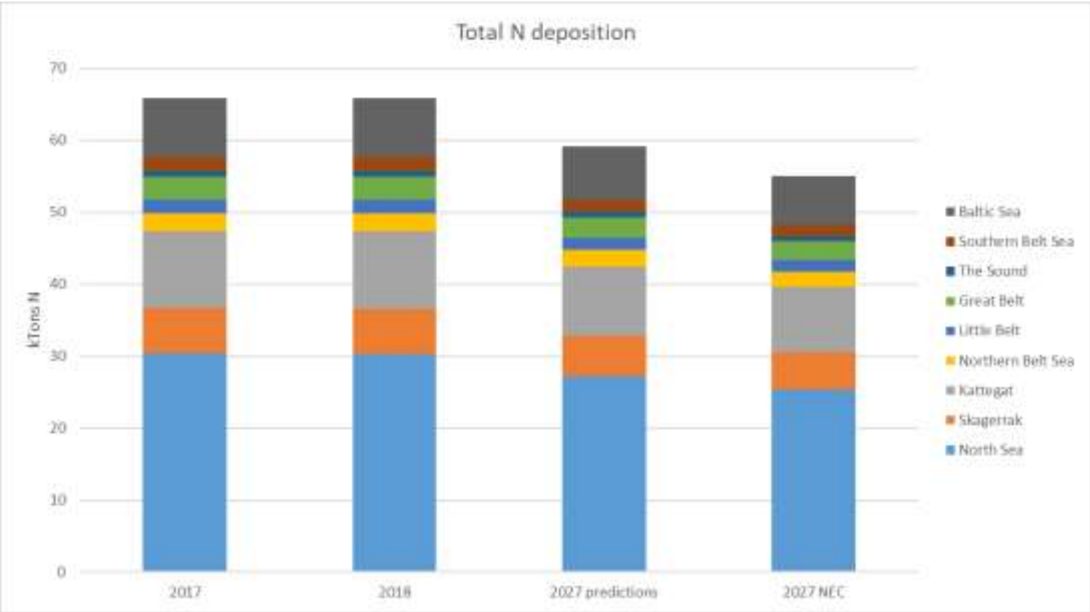

Figure 2-2 Atmospheric N deposition to the total surface of Danish Exclusive Economic Zone (EEZ) and summarised at overall water body level. ‘2017’ and ‘2018’ represent present-day atmospheric N-depositions whereas ‘2027 NEC’ represents agreement behind the directive, and ‘2027 predictions’ represent the different country prognosis.

Table 2-1 Overview of input data used to construct management scenario 2d.

Danish water areas affected	N-load reduction in management scenario 2d. Reductions are in % of current (2014-2018) load	P-load reduction applied in management scenario 2d. Reductions are in % of current (2014-2018) load	Adopted treaties
Wester Baltic Sea (light blue area, Figure 2-1)	12%	27%	Effect of updated BSAP to DS and BAP
Great belt and Kattegat (dark blue area, Figure 2-1)	35%	27%	Effect of updated BSAP and German RBMP, using HELCOM allocation scheme
Southern Little Belt (yellow area, Figure 2-1)	44%	27%	Effect of German RBMP
North Sea water bodies and Limfjorden (brown area, Figure 2-1)	31%	0%	Effect of German RBMP
Atmospheric deposition, all Danish water bodies	16%	0%	NEC directive

2.2 Method for Calculating Danish N-MAI

Based on the assumed future load reductions from neighbouring countries and atmospheric deposition as described above, N-MAIs from Danish catchments to each of the 109 water bodies is calculated. This is based on the status value of the indicators in each water body, as well as a defined target value (*Erichsen & Birkeland 2020b*). The status values for the two indicators are based on measurements. Target values are defined as a "slight deviation from reference conditions", where reference conditions refer to a state with minimal human influence. Based on the method described in Erichsen *et al*. (2020), each target value will have a MAI which will support the system to achieve GES.

Since all Danish water bodies are connected to a higher or lesser degree, the reduction needed for a single water body cannot be assessed in isolation. In addition, it is necessary to consider the load reduction requirement estimated for nearby water bodies. To account for connected water bodies, the following scheme was applied:

1) Catchments are assigned to each water body. Local catchments are assigned to the inner part (sub-catchments) of estuaries (upstream water bodies), whereas two or more local catchments (main-catchments) are assigned for downstream water bodies (e.g. the outer part of estuaries) and more open water bodies.

2) Load reductions (in %) for each individual water body are calculated as described in Erichsen *et al.* (2020) and transformed into a N-reduction requirement in tons using the load of the assigned catchment.

3) For up-stream water bodies (with local catchments) the calculated reduction is a minimum requirement that should be obtained independently of downstream waterbody requirements.

4) Reduction requirements for downstream water bodies are corrected, considering any minimum reduction handled by up-stream water bodies.

5) Reduction requirements are transformed into MAIs by subtracting the required load reduction from the average annual load and aggregated to the corresponding local and/or regional catchment.

2.3 Results

Based on the above-described assumption (implementation of the Baltic Sea Action Plan, German nutrient reductions according to RBMP 2015-2021, additional Wadden Sea P-reduction and reductions in atmospheric N deposition according to the NEC directive) the different reduction requirements and corresponding MAIs are calculated.

The different reduction requirements (%-wise and in actual tons) based on the different indicators and different models are included in Appendices A-E (20% P-reductions) and Appendices F-J (30% P-reductions), whereas the aggregated MAIs are reported in Table 2-2.

Table 2-2 Maximum Allowable Nitrogen Inputs (N-MAIs) for Danish water bodies given the implementation of an updated BSAP, German nutrient reductions according to RBMP 2015-2021 and reductions in atmospheric N-deposition according to the NEC directive.
The table shows N-MAIs in tons N per year, where 'main' denotes main-catchment, and 'sub' denotes sub-catchments being part of a main-catchment. The table shows average annual loads as well as N-MAIs calculated for 5 different phosphorus reduction scenarios designated P0, P10, P20, P30 and P50, where phosphorus loadings from Danish catchments are reduced by 0%, 10%, 20%, 30% and 50%, respectively. The column 'aggregated' denotes sub-catchments included in specific MAIs.

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
1	Roskilde Fjord, ydre	1,2		764		546		548		550		552		556
2	Roskilde Fjord, indre	2		388		380		381		382		383		384
6	Nordlige Øresund	6	1,098		1,098		1,098		1,098		1,098		1,098	
16	Korsør Nor	16		40		30		31		31		32		33
17	Basnæs Nor	17		69		52		52		52		52		53
18	Holsteinborg Nor [c)]	18		22		22		22		22		22		22
24	Isefjord, ydre	24,165		899		581		581		581		581		581
25	Skælskør Fjord og Nor	25		44		37		37		38		39		41
28	Sejerø Bugt	28	164		164		164		164		164		164	
29	Kalundborg Fjord	29	69		41[a]		42[a]		44		48		54	
34	Smålandsfarvandet, syd [c)]	34	523		523		523		523		523		523	
35	Karrebæk Fjord	35		1,272		1,007		1,036		1,065		1,092		1,143
36	Dybsø Fjord	36		61		61		61		61		61		61
37	Avnø Fjord	37		238		186		188		191		193		198
38	Guldborgsund [c)]	38	419		419		419		419		419		419	

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
44	Hjelm Bugt	44	91		91		91		91		91		91	
45	Grønsund	45	278		207		207		207		207		207	
46	Fakse Bugt	46,47	509		438		441		444		448		455	
47	Præstø Fjord	47		208		136		139		143		146		153
48	Stege Bugt [c)]	48,49	259		251		251		251		251		251	
49	Stege Nor	49		24		15		15		16		16		16
56	Østersøen, Bornholm	56	860		522[a]		522[a]		522[a]		522[a]		522[a]	
57	Østersøen, Christiansø	57	3		2[a]		2[a]		2[a]		2[a]		2[a]	
59	Nærå Strand	59		98		23[a]		29		38		47		68
62	Lillestrand	62		11		6		6		7		7		7
68	Lindelse Nor	68		50		50		50		50		50		50
72	Kløven	72		43		43		43		43		43		43
74	Bredningen	74		128		44[a]		49		55		60		71
80	Gamborg Fjord	80		80		73		73		73		73		73
82	Aborg Minde Nor	82		152		34[b]		34[a]		34[a]		38[a]		66
83	Holckenhavn Fjord	83		290		101[a]		109		121		132		156
84	Kerteminde Fjord	84,85		50		40		40		40		40		40
85	Kertinge Nor	85		24		21		21		21		21		22
86	Nyborg Fjord	83,86		308		119		128		140		151		174

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
87	Helnæs Bugt	87		216		141[a]		141[a]		141[a]		141[a]		141[a]
89	Lunkebugten	89		16		10[a]		10[a]		10[a]		10[a]		10[a]
90	Langelandssund	83,86,89,90	768		573		582		593		605		628	
92	Odense Fjord, ydre	92,93		1,358		839		857		874		892		927
93	Odense Fjord, Seden Strand	93		1,288		768		786		804		822		857
95	Storebælt SV	95	188		115[a]		115[a]		115[a]		115[a]		115[a]	
96	Storebælt NV	96, 84, 85	227		132[a]		132[a]		132[a]		132[a]		132[a]	
101	Genner Bugt	101		35		19[a]		19[a]		19[a]		19[a]		19[a]
102	Åbenrå Fjord	102		130		71[a]		71[a]		71[a]		71[a]		71[a]
103	Als Fjord	103,104,105		269		168[a]		168[a]		168[a]		168[a]		168[a]
104	Als Sund	104		68		68		68		68		68		68
105	Augustenborg Fjord	105		62		62		62		62		62		62
106	Haderslev Fjord	106		239		133		134		135		136		139
107	Juvre Dyb	107		349		119[a]		119[a]		119[a]		119[a]		119[a]
108	Avnø Vig	108		60		28		31		33		36		41
109	Hejlsminde Nor	109		138		94		105		109		114		123
110	Nybøl Nor	110		66		49		51		52		53		56
111	Lister Dyb	111		2,155		947		1,017		1,089		1,163		1,318
113	Flensborg Fjord, indre	113		51		27[a]		27[a]		27[a]		27[a]		28[a]

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
114	Flensborg Fjord, ydre	110,113,114		219		178		179		180		182		185
119	Vesterhavet, syd	119, 107, 111, 121, 120	8,538		2,952[a]		3,022[a]		3,095[a]		3,257[a]		3,934[a]	
120	Knudedyb	120		2,910		841[a]		841[a]		841[a]		841[a]		1,433[a]
121	Grådyb	121		2,920		842[a]		842 [a]		842 [a]		930		1,576
122	Vejle Fjord, ydre	122,123		968		724		728		731		735		743
123	Vejle Fjord, indre	123		561		498		505		513		517		524
124	Kolding Fjord, indre	124		493		226a		236		251		268		309
125	Kolding Fjord, ydre	124,125		528		262[a]		271[a]		286[a]		303[a]		344[a]
127	Horsens Fjord, ydre	127,128		833		477		480		483		485		491
128	Horsens Fjord, indre	128		782		426		429		431		434		440
129	Nissum Fjord, Ydre	129,131,130		2,412		1,080		1,199		1,345		1,504		1,925
130	Nissum Fjord, mellem	130,131		2,083		750		869		1,015		1,225		1,682
131	Nissum Fjord, Felsted Kog	131		1,938		1,300[b]		1,309[a]		1,361[a]		1,474		1,727
132	Ringkøbing Fjord	132		4,748		2,467[a]		2,587[a]		2,707[a]		2,826[a]		4,030
133	Vesterhavet, nord	133,129,130 ,131, 132	7,237		3,624		3,863		4,128		4,407		6,032	
136	Randers Fjord, indre	136		2,925		2,201[a]		2,201[a]		2,256		2,346		2,525
137	Randers Fjord, ydre	136,137		3,078		2,137		2,235		2,332		2,429		2,619

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
138	Hevring Bugt	138, 137, 136	3,235		2,294		2,392		2,490		2,586		2,776	
139	Anholt [c)]	139	9		9		9		9		9		9	
140	Djursland Øst	140	856		674		674		674		674		674	
141	Ebeltoft Vig [c)]	141	14		14		14		14		14		14	
142	Stavns Fjord	142		5		4		4		4		4		4
144	Knebel Vig	144		18		15		15		15		15		15
145	Kalø Vig	144,145		190		186		186		186		186		186
146	Norsminde Fjord	146		140		93[a]		99		106		114		129
147	Århus Bugt og Begtrup Vig	144,145,147	656		645		651		651		651		651	
154	Kattegat Læsø [c)]	154	78		78		78		78		78		78	
157	Bjørnholms Bugt, Riisgårde Bredning, Skive Fjord og Lovns Bredning	157,158		3,632		1,282[a]		1,396[a]		1,506[a]		1,611[a]		1,905
158	Hjarbæk Fjord	158		1,795		537		611		685		760		917
159	Mariager Fjord, indre	159		516		142		162		182		202		242
160	Mariager Fjord, ydre	159,160		963		589		609		629		649		689
165	Isefjord, indre	165		812		494		494		494		494		494
200	Kattegat Nordsjælland	1,2,24,165,200	1,857		1,243[a]		1,243[a]		1,243[a]		1,243[a]		1,243[a]	
201	Køge Bugt	201	1,109		979		988		996		1,005		1,023	

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
204	Jammerland Bugt og Musholm Bugt	204	1,327		929		931		932		934		936	
206	Smålandsfarvandet, åbne del	16,17,18,25, 35,36,37,20 6	2,014		1,663		1,697		1,729		1,760		1,819	
207	Nakskov Fjord	207		454		405		408		410		411		414
208	Femerbælt	207,208,209	1,530		1,283		1,285		1,288		1,289		1,292	
209	Rødsand og Bredningen	209		521		322		322		322		322		322
212	Fåborg Fjord	212		30		20		20		20		20		20
214	Det sydfynske Øhav	68,72,212,2 14	633		333[a]		334[a]		335[a]		336[a]		337[a]	
216	Lillebælt, syd	87,101,102, 103,104,105 ,110,113,11 4,216	1,309		885[a]		885[a]		885[a]		885[a]		885[a]	
217	Lillebælt Bredningen	74,82,106,1 08,109,217	956		469[a]		469[a]		469[a]		469[a]		469[a]	
219	Århus Bugt, syd, Samsø og Nordlige Bælthav	59,62,92,93, 127,128,142 ,146,219	2,810		1,718[a]		1,718[a]		1,718[a]		1,718[a]		1,718[a]	
221	Skagerrak	221	1,423		1,423		1,423		1,423		1,423		1,423	
222	Kattegat Ålborg Bugt [c)]	222,159,160	2,026		1,652		1,672		1,692		1,712		1,752	
224	Nordlige Lillebælt	122,123,224	1,588		988[a]		988[a]		988[a]		988[a]		988[a]	
225	Nordlige Kattegat ÅlbækBugt	225	706		706		706		706		706		706	

No.	Name	Aggregation	Average annual (main)	Average annual (sub)	P0 (main)	P0 (sub)	P10 (main)	P10 (sub)	P20 (main)	P20 (sub)	P30 (main)	P30 (sub)	P50 (main)	P50 (sub)
231	Lillebælt Snævringen	231,124,125 ,80	789		266		285		304		323		360	
232	Nissum Bredning	232	880		490[a]		526[a]		545[a]		561[a]		595[a]	
233	Kaas Bredning og Venø Bugt	232,233		1,955		1,129		1,239		1,350		1,463		1,670
234	Løgstør Bredning	157,158,234 , 233, 236		4,336		2,811[a]		2,923[a]		3,035[a]		3,147[a]		3,369[a]
235	Nibe Bredning og Langerak	157, 158, 233, 234, 235, 236, 238	11,064		6,867		6,982		7,139		7,295		7,707	
236	Thisted Bredning	236		1,091		379[a]		388[a]		398[a]		408[a]		428
238	Halkær Bredning	238		620		114[b]		117[a]		161[a]		206[a]		396
	Danish N-load (National MAI)		58,100		36,763		37,425		38,139		38,949		42,084	

a) Truncated at land-based reference N-load for one indicator

b) Truncated at land-based reference N-load for two indicators

c) Chlorophyll-a and light 'good-moderate' target obtained based on measurement (and not dependent on reductions from neighbouring countries or atmospheric depositions

2.4 Closing Remarks

The estimated Maximum Allowable Nitrogen Input (N-MAI) to Danish water bodies presented in this report is based on the preconditions that the BSAP, the RBMP 2015-2021, additional Wadden Sea P-reductions (20% and 30%), and the NEC directive will be fully implemented. These treaties have been adopted but not yet fully implemented. These assumptions, which have not been assessed as part of this study, are accepted as preconditions.

If the preconditions are fulfilled, and the MAI for Danish water bodies is reached by the end of 2027, all Danish water bodies will most likely not have reached Good Ecological Status (GES) as defined in the WFD. This is because:

- The MAI estimation is based on the depth of light as a proxy for the indicator eelgrass depth limit. Hence, even if light has reached the target value, recovery of eelgrass after light improvements may take years to decades. In addition, other factors, such as sediment suitability, lack of seedlings, etc., may delay or prevent eelgrass recovery.

- With the given preconditions in management scenario 1, one or both of the indicators (chlorophyll-a and light) may not reach the target value despite reductions from Danish catchments. In these situations, the reduction requirement for that indicator is cut off/truncated at the reference loading. A cut-off at reference loading indicates that due to the scenario and associated preconditions, a specific MAI for that water body that ensures GES cannot be obtained, and administrative choices have to be made, like applying an average reduction from neighbouring water bodies, reductions to down-stream water bodies or a general MAI (kg/ha) for those water bodies. However, the implication is that GES for both indicators cannot be expected in these water bodies, even if MAI is obtained.

- The method is not based on the one-out-all-out principle as required in the WFD, but on an average of two indicators. Hence, it is expected that both indicators will be as close to the target value as possible, but one will theoretically be above and one below the target value.

- In this management scenario, we are using the boundary between good and moderate status as the target value for each of the indicators. Due to uncertainties, there is a 50% chance that the indicator value will end in good status and a 50% chance that the indicator value will end in moderate status, if MAI for that indicator is reached, assuming the measured indicator follows a symmetrical distribution.

- As some ecosystems respond with significant time-lags to changes in loadings, it will take years before the full environmental effects of nutrient reductions can be observed. Hence, reaching MAI will provide the conditions for obtaining GES but the achievement of GES will likely be delayed.

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Appendix A – Maximum Allowable Nitrogen Inputs (N-MAIs) based on management scenario 2d and assuming 0% reduction in Danish land-based P-loads

Table A- 1 Water body-specific MAIs based on the two individual indicators chlorophyll-a (Chl-a) and light penetration depth (light) estimated from statistical models (STAT) or mechanistic models (MEK), respectively.
The table shows both the individual calculations as well as the averaged water-specific MAIs (without any aggregation) and the corresponding need for reduction in %. The data in this table are based on Management scenario 2d and Danish land-based P-reductions set at 0%.

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
1	Roskilde Fjord,ydre	1,2	764			656	437		546	546	28
2	Roskilde Fjord, indre	2	388	388		388	354	388	371	380	2
6	Nordlige Øresund	6	1,098			1,098	1,098		1,098	1,098	0
16	Korsør Nor	16	40			40	21		30	30	24
17	Basnæs Nor	17	69			69	35		52	52	24
18	Holsteinborg Nor	18	22			22	22		22	22	0
24	Isefjord, ydre	24,165	899	525	677	567	706	601	636	619	31
25	Skælskør Fjord og Nor	25	44			36	37		37	37	17
28	Sejerø Bugt	28	164			164	164		164	164	0
29	Kalundborg Fjord	29	69	13	42	39	69	28	54	41	41
34	Smålandsfarvandet, syd	34	523			523	523		523	523	0
35	Karrebæk Fjord	35	1,272			1,272	742		1,007	1,007	21
36	Dybsø Fjord	36	61			61	61		61	61	0
37	Avnø Fjord	37	238			238	134		186	186	22
38	Guldborgsund	38	419			419	419		419	419	0
44	Hjelm Bugt	44	91			91	91		91	91	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
45	Grønsund	45	278			278	136		207	207	25
46	Fakse Bugt	46,47	509			506	509		508	508	0
47	Præstø Fjord	47	208			145	127		136	136	35
48	Stege Bugt	48,49	259			259	259		259	259	0
49	Stege Nor	49	24			18	12		15	15	36
56	Østersøen, Bornholm	56	859			184	860		522	522	39
57	Østersøen, Christiansø	57	3			0	3		2	2	48
59	Nærå Strand	59	98			24	22		23	23	76
62	Lillestrand	62	11			8	5		6	6	42
68	Lindelse Nor	68	50			50	50		50	50	0
72	Kløven	72	43			43	43		43	43	0
74	Bredningen	74	128			47	42		44	44	65
80	Gamborg Fjord	80	80			66	80		73	73	9
82	Aborg Minde Nor	82	152			34	34		34	34	78
83	Holckenhavn Fjord	83	290			81	121		101	101	65
84	Kerteminde Fjord	84,85	50			31	50		40	40	19
85	Kertinge Nor	85	24	23		23	14	23	18	21	13
86	Nyborg Fjord	83,86	308			154	277		215	215	30
87	Helnæs Bugt	87	216			67	216		141	141	35

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
89	Lunkebugten	89	16			5	16		10	10	34
90	Langelandssund	83,86,89,90	768			581	768		674	674	12
92	Odense Fjord, ydre	92,93	1,358	836	1,223	986	1,127	1,030	1,057	1,043	23
93	Odense Fjord, Seden Strand	93	1,288		690	1,288	406	690	847	768	40
95	Storebælt SV	95	188			41	188		115	115	39
96	Storebælt NV	96, 84, 85	227			38	227		132	132	42
101	Genner Bugt	101	35			13	25		19	19	46
102	Åbenrå Fjord	102	130	59		59	106	59	82	71	46
103	Als Fjord	103,104,105	269			67	269		168	168	37
104	Als Sund	104	68			68	68		68	68	0
105	Augustenborg Fjord	105	62	62		62	62	62	62	62	0
106	Haderslev Fjord	106	239			107	160		133	133	44
107	Juvre Dyb	107	349			119			119	119	66
108	Avnø Vig	108	60			32	24		28	28	53
109	Hejlsminde Nor	109	138			127	61		94	94	32
110	Nybøl Nor	110	66			44	55		49	49	25
111	Lister Dyb	111	2,155			947			947	947	56
113	Flensborg Fjord, indre	113	51	19		19	51	19	35	27	47
114	Flensborg Fjord, ydre	110,113,114	219	219		219	219	219	219	219	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
119	Vesterhavet, syd	119, 107, 111, 121, 120	8,538			3,934			3,934	3,934	54
120	Knudedyb	120	2,910	841		841		841	841	841	71
121	Grådyb	121	2,920			842			842	842	71
122	Vejle Fjord, ydre	122,123	968			480	968		724	724	25
123	Vejle Fjord, indre	123	561	532	451	530	479	491	505	498	11
124	Kolding Fjord, indre	124	493	188		246	283	188	265	226	54
125	Kolding Fjord, ydre	124,125	528			278	400		339	339	36
127	Horsens Fjord, ydre	127,128	833			508	449		478	478	43
128	Horsens Fjord, indre	128	782			405	447		426	426	46
129	Nissum Fjord, Ydre	129,131,130	2,412			1,357	1,018		1,187	1,187	51
130	Nissum Fjord, mellem	130,131	2,083			898	602		750	750	64
131	Nissum Fjord, Felsted Kog	131	1,938	1,938		662	662	1,938	662	1,300	33
132	Ringkøbing Fjord	132	4,747		1,679	4,748	1,761	1,679	3,254	2,467	48
133	Vesterhavet, nord	133,129,130 ,131, 132	7,237			7,237			7,237	7,237	0
136	Randers Fjord, indre	136	2,925	2,925	1,477	2,925	1,477	2,201	2,201	2,201	25
137	Randers Fjord, ydre	136,137	3,078	3,078	1,196	3,078	1,196	2,137	2,137	2,137	31
138	Hevring Bugt	138, 137, 136	3,235		3,235	3,235	3,235		3,235	3,235	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
139	Anholt	139	9			9	9		9	9	0
140	Djursland Øst	140	856			493	856		674	674	21
141	Ebeltoft Vig	141	14			14	14		14	14	0
142	Stavns Fjord	142	5			5	3		4	4	19
144	Knebel Vig	144	18			11	18		15	15	19
145	Kalø Vig	144,145	190	190	190	190	190	190	190	190	0
146	Norsminde Fjord	146	140			140	47		93	93	33
147	Århus Bugt og Begtrup Vig	144,145,147	656	631	656	636	656	644	646	645	2
154	Kattegat Læsø	154	78			78	78		78	78	0
157	Bjørnholms Bugt, Riisgårde Bredning, Skive Fjord og Lovns Bredning	157,158	3,632			992	1,572		1,282	1,282	65
158	Hjarbæk Fjord	158	1,795			426	649		537	537	70
159	Mariager Fjord, indre	159	516			84	201		142	142	72
160	Mariager Fjord, ydre	159,160	963			784	516		650	650	32
165	Isefjord, indre	165	812	383		400	812	383	606	494	39
200	Kattegat Nordsjælland	1,2,24,165,200	1,857			1,857	629		1,243	1,243	33
201	Køge Bugt	201	1,109	850		1,109	1,109	850	1,109	979	12
204	Jammerland Bugt og Musholm Bugt	204	1,327			1,327	532		929	929	30

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
206	Smålandsfarvandet, åbne del	16,17,18,25,35,36,37,206	2,014			2,014	1,699		1,856	1,856	8
207	Nakskov Fjord	207	454			450	360		405	405	11
208	Femerbælt	207,208,209	1,530			1,468	1,530		1,499	1,499	2
209	Rødsand og Bredningen	209	521			284	359		322	322	38
212	Fåborg Fjord	212	30			11	30		20	20	32
214	Det sydfynske Øhav	68,72,212,214	633	176	451	176	529	314	352	333	47
216	Lillebælt, syd	87,101,102,103,104,105,110,113,114,216	1,309			462	1,309		885	885	32
217	Lillebælt Bredningen	74,82,106,108,109,217	956	276		371	956	276	663	469	51
219	Århus Bugt, syd, Samsø og Nordlige Bælthav	59,62,92,93,127,128,142,146,219	2,810			626	2,810		1,718	1,718	39
221	Skagerrak	221	1,423			1,423			1,423	1,423	0
222	Kattegat Ålborg Bugt	222,159,160	2,026			2,026	2,026		2,026	2,026	0
224	Nordlige Lillebælt	122,123,224	1,588			389	1,588		988	988	38
225	Nordlige Kattegat ÅlbækBugt	225	706			706	706		706	706	0
231	Lillebælt Snævringen	231,124,125,80	789		222	182	439	222	311	266	66

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
232	Nissum Bredning	232	880	297	604	297	762	451	530	490	44
233	Kaas Bredning og Venø Bugt	232,233	1,955			1,457	802		1,129	1,129	42
234	Løgstør Bredning	157,158,234, 233, 236	6,502			1,980	3,642		2,811	2,811	57
235	Nibe Bredning og Langerak	157, 158, 233, 234, 235, 236, 238	11,064		9,773	2,984	9,774	9,773	6,379	8,076	27
236	Thisted Bredning	236	1,091			269	488		379	379	65
238	Halkær Bredning	238	620			114	114		114	114	82

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Appendix B – Maximum Allowable Nitrogen Inputs (N-MAIs) based on management scenario 2d and assuming 10% reduction in Danish land-based P-loads

Table B- 1 Water body-specific MAIs based on the two individual indicators chlorophyll-a (Chl-a) and light penetration depth (light) estimated from statistical models (STAT) or mechanistic models (MEK), respectively.
The table shows both the individual calculations as well as the averaged water-specific MAIs (without any aggregation) and the corresponding need for reduction in %. The data in this table are based on management scenario 2d and Danish land-based P-reductions set at 10%.

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
1	Roskilde Fjord,ydre	1,2	764			656	441		548	548	28
2	Roskilde Fjord, indre	2	388	388		388	358	388	373	381	2
6	Nordlige Øresund	6	1,098			1,098	1,098		1,098	1,098	0
16	Korsør Nor	16	40			40	22		31	31	23
17	Basnæs Nor	17	69			69	36		52	52	24
18	Holsteinborg Nor	18	22			22	22		22	22	0
24	Isefjord, ydre	24,165	899	546	692	567	707	619	637	628	30
25	Skælskør Fjord og Nor	25	44			37	38		37	37	15
28	Sejerø Bugt	28	164			164	164		164	164	0
29	Kalundborg Fjord	29	69	13	48	39	69	31	54	42	39
34	Smålandsfarvandet, syd	34	523			523	523		523	523	0
35	Karrebæk Fjord	35	1,272			1,272	800		1,036	1,036	19
36	Dybsø Fjord	36	61			61	61		61	61	0
37	Avnø Fjord	37	238			238	139		188	188	21
38	Guldborgsund	38	419			419	419		419	419	0
44	Hjelm Bugt	44	91			91	91		91	91	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
45	Grønsund	45	278			278	136		207	207	25
46	Fakse Bugt	46,47	509			507	509		508	508	0
47	Præstø Fjord	47	208			147	131		139	139	33
48	Stege Bugt	48,49	259			259	259		259	259	0
49	Stege Nor	49	24			18	13		15	15	35
56	Østersøen, Bornholm	56	859			184	860		522	522	39
57	Østersøen, Christiansø	57	3			0	3		2	2	48
59	Nærå Strand	59	98			29	29		29	29	70
62	Lillestrand	62	11			8	5		7	7	42
68	Lindelse Nor	68	50			50	50		50	50	0
72	Kløven	72	43			43	43		43	43	0
74	Bredningen	74	128			50	48		49	49	62
80	Gamborg Fjord	80	80			66	80		73	73	9
82	Aborg Minde Nor	82	152			34	34		34	34	78
83	Holckenhavn Fjord	83	289			87	132		109	109	62
84	Kerteminde Fjord	84,85	50			31	50		40	40	19
85	Kertinge Nor	85	24	24		23	14	24	19	21	10
86	Nyborg Fjord	83,86	308			159	280		219	219	29
87	Helnæs Bugt	87	216			67	216		141	141	35

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
89	Lunkebugten	89	16			5	16		10	10	34
90	Langelandssund	83,86,89,90	768			581	768		674	674	12
92	Odense Fjord, ydre	92,93	1,358	836	1,223	996	1,162	1,030	1,079	1,054	22
93	Odense Fjord, Seden Strand	93	1,288		690	1,288	478	690	883	786	39
95	Storebælt SV	95	188			41	188		115	115	39
96	Storebælt NV	96, 84, 85	227			38	227		132	132	42
101	Genner Bugt	101	35			13	25		19	19	46
102	Åbenrå Fjord	102	130	59		59	106	59	82	71	46
103	Als Fjord	103,104,105	269			67	269		168	168	37
104	Als Sund	104	68			68	68		68	68	0
105	Augustenborg Fjord	105	62	62		62	62	62	62	62	0
106	Haderslev Fjord	106	239			108	161		134	134	44
107	Juvre Dyb	107	349			119			119	119	66
108	Avnø Vig	108	60			34	27		31	31	49
109	Hejlsminde Nor	109	138			138	71		105	105	24
110	Nybøl Nor	110	66			45	56		51	51	23
111	Lister Dyb	111	2,155			1,017			1,017	1,017	53
113	Flensborg Fjord, indre	113	51	19		19	51	19	35	27	47
114	Flensborg Fjord, ydre	110,113,114	219	219		219	219	219	219	219	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
119	Vesterhavet, syd	119, 107, 111, 121, 120	8,538			3,934			3,934	3,934	54
120	Knudedyb	120	2,910	841		841		841	841	841	71
121	Grådyb	121	2,920			842			842	842	71
122	Vejle Fjord, ydre	122,123	968			487	968		727	727	25
123	Vejle Fjord, indre	123	561	546	465	531	480	506	505	505	10
124	Kolding Fjord, indre	124	493	200		251	294	200	272	236	52
125	Kolding Fjord, ydre	124,125	528			278	406		342	342	35
127	Horsens Fjord, ydre	127,128	833			516	454		485	485	42
128	Horsens Fjord, indre	128	782			407	450		429	429	45
129	Nissum Fjord, Ydre	129,131,130	2,413			1,444	1,103		1,273	1,273	47
130	Nissum Fjord, mellem	130,131	2,083			993	745		869	869	58
131	Nissum Fjord, Felsted Kog	131	1,938	1,938		662	698	1,938	680	1,309	32
132	Ringkøbing Fjord	132	4,748		1,679	4,748	2,242	1,679	3,495	2,587	46
133	Vesterhavet, nord	133,129,130 ,131, 132	7,237			7,237			7,237	7,237	0
136	Randers Fjord, indre	136	2,925	2,925	1,477	2,925	1,477	2,201	2,201	2,201	25
137	Randers Fjord, ydre	136,137	3,078	3,078	1,392	3,078	1,392	2,235	2,235	2,235	27
138	Hevring Bugt	138, 137, 136	3,235		3,235	3,235	3,235		3,235	3,235	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
139	Anholt	139	9			9	9		9	9	0
140	Djursland Øst	140	856			493	856		674	674	21
141	Ebeltoft Vig	141	14			14	14		14	14	0
142	Stavns Fjord	142	5			5	3		4	4	19
144	Knebel Vig	144	18			11	18		15	15	19
145	Kalø Vig	144,145	190	190	190	190	190	190	190	190	0
146	Norsminde Fjord	146	140			140	58		99	99	29
147	Århus Bugt og Begtrup Vig	144,145,147	656	656	656	636	656	656	646	651	1
154	Kattegat Læsø	154	78			78	78		78	78	0
157	Bjørnholms Bugt, Riisgårde Bredning, Skive Fjord og Lovns Bredning	157,158	3,632			992	1,801		1,396	1,396	62
158	Hjarbæk Fjord	158	1,795			465	756		611	611	66
159	Mariager Fjord, indre	159	516			88	237		163	163	69
160	Mariager Fjord, ydre	159,160	963			823	597		710	710	26
165	Isefjord, indre	165	812	383		400	812	383	606	494	39
200	Kattegat Nordsjælland	1,2,24,165,200	1,857			1,857	629		1,243	1,243	33
201	Køge Bugt	201	1,109	867		1,109	1,109	867	1,109	988	11
204	Jammerland Bugt og Musholm Bugt	204	1,327			1,327	535		931	931	30

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
206	Smålandsfarvandet, åbne del	16,17,18,25,35,36,37,206	2,014			2,014	1,699		1,856	1,856	8
207	Nakskov Fjord	207	454			452	363		408	408	10
208	Femerbælt	207,208,209	1,530			1,468	1,530		1,499	1,499	2
209	Rødsand og Bredningen	209	521			284	359		322	322	38
212	Fåborg Fjord	212	30			11	30		20	20	32
214	Det sydfynske Øhav	68,72,212,214	633	176	454	176	529	315	352	334	47
216	Lillebælt, syd	87,101,102,103,104,105,110,113,114,216	1,309			462	1,309		885	885	32
217	Lillebælt Bredningen	74,82,106,108,109,217	956	276		371	956	276	663	469	51
219	Århus Bugt, syd, Samsø og Nordlige Bælthav	59,62,92,93,127,128,142,146,219	2,810			626	2,810		1,718	1,718	39
221	Skagerrak	221	1,423			1,423			1,423	1,423	0
222	Kattegat Ålborg Bugt	222,159,160	2,026			2,026	2,026		2,026	2,026	0
224	Nordlige Lillebælt	122,123,224	1,588			389	1,588		988	988	38
225	Nordlige Kattegat ÅlbækBugt	225	706			706	706		706	706	0
231	Lillebælt Snævringen	231,124,125,80	789		260	182	439	260	311	285	64

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
232	Nissum Bredning	232	880	302	639	297	866	470	582	526	40
233	Kaas Bredning og Venø Bugt	232,233	1,955			1,519	960		1,239	1,239	37
234	Løgstør Bredning	157,158,234, 233, 236	6,503			1,980	3,866		2,923	2,923	55
235	Nibe Bredning og Langerak	157, 158, 233, 234, 235, 236, 238	11,064		9,987	3,574	10,441	9,987	7,008	8,497	23
236	Thisted Bredning	236	1,091			269	508		389	389	64
238	Halkær Bredning	238	620			114	119		117	117	81

Appendix C – Maximum Allowable Nitrogen Inputs (N-MAIs) based on management scenario 2d and assuming 20% reduction in Danish land-based P-loads

Table C- 1 Water body-specific MAIs based on the two individual indicators chlorophyll-a (Chl-a) and light penetration depth (light) estimated from statistical models (STAT) or mechanistic models (MEK), respectively.
The table shows both the individual calculations as well as the averaged water-specific MAIs (without any aggregation) and the corresponding need for reduction in %. The data in this table are based on management scenario 2d and Danish land-based P-reductions set at 20%.

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
1	Roskilde Fjord,ydre	1,2	764			656	445		550	550	28
2	Roskilde Fjord, indre	2	388	388		388	362	388	375	382	2
6	Nordlige Øresund	6	1,098			1,098	1,098		1,098	1,098	0
16	Korsør Nor	16	40			40	23		31	31	22
17	Basnæs Nor	17	69			69	36		52	52	24
18	Holsteinborg Nor	18	22			22	22		22	22	0
24	Isefjord, ydre	24,165	899	568	708	567	707	638	637	637	29
25	Skælskør Fjord og Nor	25	44			37	40		38	38	13
28	Sejerø Bugt	28	164			164	164		164	164	0
29	Kalundborg Fjord	29	69	16	53	39	69	35	54	44	36
34	Smålandsfarvandet, syd	34	523			523	523		523	523	0
35	Karrebæk Fjord	35	1,272			1,272	857		1,065	1,065	16
36	Dybsø Fjord	36	61			61	61		61	61	0
37	Avnø Fjord	37	238			238	144		191	191	20
38	Guldborgsund	38	419			419	419		419	419	0
44	Hjelm Bugt	44	91			91	91		91	91	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
45	Grønsund	45	278			278	136		207	207	25
46	Fakse Bugt	46,47	509			509	509		509	509	0
47	Præstø Fjord	47	208			150	136		143	143	31
48	Stege Bugt	48,49	259			259	259		259	259	0
49	Stege Nor	49	24			18	13		16	16	35
56	Østersøen, Bornholm	56	859			184	860		522	522	39
57	Østersøen, Christiansø	57	3			0	3		2	2	48
59	Nærå Strand	59	98			35	41		38	38	61
62	Lillestrand	62	11			8	5		7	7	41
68	Lindelse Nor	68	50			50	50		50	50	0
72	Kløven	72	43			43	43		43	43	0
74	Bredningen	74	128			54	55		55	55	57
80	Gamborg Fjord	80	80			66	80		73	73	9
82	Aborg Minde Nor	82	152			34	34		34	34	78
83	Holckenhavn Fjord	83	290			98	143		121	121	58
84	Kerteminde Fjord	84,85	50			31	50		40	40	19
85	Kertinge Nor	85	24	24		23	15	24	19	21	10
86	Nyborg Fjord	83,86	308			164	285		224	224	27
87	Helnæs Bugt	87	216			67	216		141	141	35

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
89	Lunkebugten	89	16			5	16		10	10	34
90	Langelandssund	83,86,89,90	768			581	768		674	674	12
92	Odense Fjord, ydre	92,93	1,358	836	1,223	1,006	1,196	1,030	1,101	1,065	22
93	Odense Fjord, Seden Strand	93	1,288		690	1,288	549	690	918	804	38
95	Storebælt SV	95	188			41	188		115	115	39
96	Storebælt NV	96, 84, 85	227			38	227		132	132	42
101	Genner Bugt	101	35			13	25		19	19	46
102	Åbenrå Fjord	102	130	59		59	106	59	82	71	46
103	Als Fjord	103,104,105	269			67	269		168	168	37
104	Als Sund	104	68			68	68		68	68	0
105	Augustenborg Fjord	105	62	62		62	62	62	62	62	0
106	Haderslev Fjord	106	239			109	162		135	135	43
107	Juvre Dyb	107	349			119			119	119	66
108	Avnø Vig	108	60			36	30		33	33	45
109	Hejlsminde Nor	109	138			138	80		109	109	21
110	Nybøl Nor	110	66			46	58		52	52	21
111	Lister Dyb	111	2,155			1,089			1,089	1,089	49
113	Flensborg Fjord, indre	113	51	19		19	51	19	35	27	47
114	Flensborg Fjord, ydre	110,113,114	219	219		219	219	219	219	219	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
119	Vesterhavet, syd	119, 107, 111, 121, 120	8,538			3,934			3,934	3,934	54
120	Knudedyb	120	2,910	841		841		841	841	841	71
121	Grådyb	121	2,920			842			842	842	71
122	Vejle Fjord, ydre	122,123	968			495	968		731	731	24
123	Vejle Fjord, indre	123	561	561	478	532	481	520	506	513	9
124	Kolding Fjord, indre	124	493	222		256	304	222	280	251	49
125	Kolding Fjord, ydre	124,125	528			278	414		346	346	35
127	Horsens Fjord, ydre	127,128	833			525	457		491	491	41
128	Horsens Fjord, indre	128	782			409	454		431	431	45
129	Nissum Fjord, Ydre	129,131,130	2,412			1,562	1,187		1,375	1,375	43
130	Nissum Fjord, mellem	130,131	2,083			1,146	884		1,015	1,015	51
131	Nissum Fjord, Felsted Kog	131	1,938	1,938		662	908	1,938	785	1,361	30
132	Ringkøbing Fjord	132	4,748		1,679	4,748	2,721	1,679	3,734	2,707	43
133	Vesterhavet, nord	133,129,130 ,131, 132	7,237			7,237			7,237	7,237	0
136	Randers Fjord, indre	136	2,925	2,925	1,588	2,925	1,588	2,256	2,256	2,256	23
137	Randers Fjord, ydre	136,137	3,078	3,078	1,587	3,078	1,587	2,332	2,332	2,332	24
138	Hevring Bugt	138, 137, 136	3,235		3,235	3,235	3,235		3,235	3,235	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
139	Anholt	139	9			9	9		9	9	0
140	Djursland Øst	140	856			493	856		674	674	21
141	Ebeltoft Vig	141	14			14	14		14	14	0
142	Stavns Fjord	142	5			5	3		4	4	19
144	Knebel Vig	144	18			11	18		15	15	19
145	Kalø Vig	144,145	190	190	190	190	190	190	190	190	0
146	Norsminde Fjord	146	140			140	73		106	106	24
147	Århus Bugt og Begtrup Vig	144,145,147	656	656	656	636	656	656	646	651	1
154	Kattegat Læsø	154	78			78	78		78	78	0
157	Bjørnholms Bugt, Riisgårde Bredning, Skive Fjord og Lovns Bredning	157,158	3,632			992	2,019		1,506	1,506	59
158	Hjarbæk Fjord	158	1,795			508	862		685	685	62
159	Mariager Fjord, indre	159	516			94	271		182	182	65
160	Mariager Fjord, ydre	159,160	963			870	672		771	771	20
165	Isefjord, indre	165	812	383		400	812	383	606	494	39
200	Kattegat Nordsjælland	1,2,24,165,200	1,857			1,857	629		1,243	1,243	33
201	Køge Bugt	201	1,109	884		1,109	1,109	884	1,109	996	10
204	Jammerland Bugt og Musholm Bugt	204	1,327			1,327	537		932	932	30

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
206	Smålandsfarvandet, åbne del	16,17,18,25,35,36,37,206	2,014			2,014	1,699		1,856	1,856	8
207	Nakskov Fjord	207	454			454	366		410	410	10
208	Femerbælt	207,208,209	1,530			1,468	1,530		1,499	1,499	2
209	Rødsand og Bredningen	209	521			284	359		322	322	38
212	Fåborg Fjord	212	30			11	30		20	20	32
214	Det sydfynske Øhav	68,72,212,214	633	176	458	176	529	317	352	335	47
216	Lillebælt, syd	87,101,102,103,104,105,110,113,114,216	1,309			462	1,309		885	885	32
217	Lillebælt Bredningen	74,82,106,108,109,217	956	276		371	956	276	663	469	51
219	Århus Bugt, syd, Samsø og Nordlige Bælthav	59,62,92,93,127,128,142,146,219	2,810			626	2,810		1,718	1,718	39
221	Skagerrak	221	1,423			1,423			1,423	1,423	0
222	Kattegat Ålborg Bugt	222,159,160	2,026			2,026	2,026		2,026	2,026	0
224	Nordlige Lillebælt	122,123,224	1,588			389	1,588		988	988	38
225	Nordlige Kattegat ÅlbækBugt	225	706			706	706		706	706	0
231	Lillebælt Snævringen	231,124,125,80	789		298	182	439	298	311	304	61

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
232	Nissum Bredning	232	880	331	673	297	880	502	589	545	38
233	Kaas Bredning og Venø Bugt	232,233	1,955			1,583	1,118		1,350	1,350	31
234	Løgstør Bredning	157,158,234 , 233, 236	6,502			1,980	4,091		3,035	3,035	53
235	Nibe Bredning og Langerak	157, 158, 233, 234, 235, 236, 238	11,064		10,199	4,200	11,064	10,199	7,632	8,916	19
236	Thisted Bredning	236	1,091			269	528		398	398	63
238	Halkær Bredning	238	620			114	209		161	161	74

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Appendix D – Maximum Allowable Nitrogen Inputs (N-MAIs) based on management scenario 2d and assuming 30% reduction in Danish land-based P-loads

Table D- 1 Water body-specific MAIs based on the two individual indicators chlorophyll-a (Chl-a) and light penetration depth (light) estimated from statistical models (STAT) or mechanistic models (MEK), respectively.
The table shows both the individual calculations as well as the averaged water-specific MAIs (without any aggregation) and the corresponding need for reduction in %. The data in this table are based on management scenario 2d and Danish land-based P-reductions set at 30%.

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
1	Roskilde Fjord,ydre	1,2	764			656	449		552	552	28
2	Roskilde Fjord, indre	2	388	388		388	365	388	377	383	1
6	Nordlige Øresund	6	1,098			1,098	1,098		1,098	1,098	0
16	Korsør Nor	16	40			40	23		32	32	21
17	Basnæs Nor	17	69			69	36		52	52	24
18	Holsteinborg Nor	18	22			22	22		22	22	0
24	Isefjord, ydre	24,165	899	591	723	567	708	657	637	647	28
25	Skælskør Fjord og Nor	25	44			37	41		39	39	11
28	Sejerø Bugt	28	164			164	164		164	164	0
29	Kalundborg Fjord	29	69	23	59	39	69	41	54	47	32
34	Smålandsfarvandet, syd	34	523			523	523		523	523	0
35	Karrebæk Fjord	35	1,272			1,272	912		1,092	1,092	14
36	Dybsø Fjord	36	61			61	61		61	61	0
37	Avnø Fjord	37	238			238	149		193	193	19
38	Guldborgsund	38	419			419	419		419	419	0
44	Hjelm Bugt	44	91			91	91		91	91	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
45	Grønsund	45	278			278	136		207	207	25
46	Fakse Bugt	46,47	509			509	509		509	509	0
47	Præstø Fjord	47	208			152	140		146	146	30
48	Stege Bugt	48,49	259			259	259		259	259	0
49	Stege Nor	49	24			19	13		16	16	34
56	Østersøen, Bornholm	56	859			184	860		522	522	39
57	Østersøen, Christiansø	57	3			0	3		2	2	48
59	Nærå Strand	59	98			42	53		47	47	52
62	Lillestrand	62	11			8	5		7	7	40
68	Lindelse Nor	68	50			50	50		50	50	0
72	Kløven	72	43			43	43		43	43	0
74	Bredningen	74	128			59	62		60	60	53
80	Gamborg Fjord	80	80			66	80		73	73	9
82	Aborg Minde Nor	82	152			41	34		38	38	75
83	Holckenhavn Fjord	83	290			110	155		132	132	54
84	Kerteminde Fjord	84,85	50			31	50		40	40	19
85	Kertinge Nor	85	24	24		23	15	24	19	21	9
86	Nyborg Fjord	83,86	308			169	288		228	228	26
87	Helnæs Bugt	87	216			67	216		141	141	35

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
89	Lunkebugten	89	16			5	16		10	10	34
90	Langelandssund	83,86,89,90	768			581	768		674	674	12
92	Odense Fjord, ydre	92,93	1,358	836	1,223	1,015	1,231	1,030	1,123	1,076	21
93	Odense Fjord, Seden Strand	93	1,288		690	1,288	620	690	954	822	36
95	Storebælt SV	95	188			41	188		115	115	39
96	Storebælt NV	96, 84, 85	227			38	227		132	132	42
101	Genner Bugt	101	35			13	25		19	19	46
102	Åbenrå Fjord	102	130	59		59	106	59	82	71	46
103	Als Fjord	103,104,105	269			67	269		168	168	37
104	Als Sund	104	68			68	68		68	68	0
105	Augustenborg Fjord	105	62	62		62	62	62	62	62	0
106	Haderslev Fjord	106	239			110	163		136	136	43
107	Juvre Dyb	107	349			119			119	119	66
108	Avnø Vig	108	60			39	32		36	36	40
109	Hejlsminde Nor	109	138			138	90		114	114	18
110	Nybøl Nor	110	66			48	59		53	53	19
111	Lister Dyb	111	2,155			1,163			1,163	1,163	46
113	Flensborg Fjord, indre	113	51	19		19	51	19	35	27	47
114	Flensborg Fjord, ydre	110,113,114	219	219		219	219	219	219	219	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
119	Vesterhavet, syd	119, 107, 111, 121, 120	8,538			3,934			3,934	3,934	54
120	Knudedyb	120	2,910	841		841		841	841	841	71
121	Grådyb	121	2,920			930			930	930	68
122	Vejle Fjord, ydre	122,123	968			503	968		735	735	24
123	Vejle Fjord, indre	123	561	561	492	533	481	527	507	517	8
124	Kolding Fjord, indre	124	493	248		261	315	248	288	268	46
125	Kolding Fjord, ydre	124,125	528			278	420		349	349	34
127	Horsens Fjord, ydre	127,128	833			535	462		499	499	40
128	Horsens Fjord, indre	128	782			411	458		434	434	44
129	Nissum Fjord, Ydre	129,131,130	2,412			1,736	1,272		1,504	1,504	38
130	Nissum Fjord, mellem	130,131	2,083			1,430	1,019		1,225	1,225	41
131	Nissum Fjord, Felsted Kog	131	1,938	1,938		906	1,115	1,938	1,010	1,474	24
132	Ringkøbing Fjord	132	4,748		1,679	4,748	3,197	1,679	3,972	2,826	40
133	Vesterhavet, nord	133,129,130 ,131, 132	7,237			7,237			7,237	7,237	0
136	Randers Fjord, indre	136	2,925	2,925	1,768	2,925	1,768	2,346	2,346	2,346	20
137	Randers Fjord, ydre	136,137	3,078	3,078	1,779	3,078	1,779	2,429	2,429	2,429	21
138	Hevring Bugt	138, 137, 136	3,235		3,235	3,235	3,235		3,235	3,235	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
139	Anholt	139	9			9	9		9	9	0
140	Djursland Øst	140	856			493	856		674	674	21
141	Ebeltoft Vig	141	14			14	14		14	14	0
142	Stavns Fjord	142	5			5	3		4	4	19
144	Knebel Vig	144	18			11	18		15	15	19
145	Kalø Vig	144,145	190	190	190	190	190	190	190	190	0
146	Norsminde Fjord	146	140			140	88		114	114	19
147	Århus Bugt og Begtrup Vig	144,145,147	656	656	656	636	656	656	646	651	1
154	Kattegat Læsø	154	78			78	78		78	78	0
157	Bjørnholms Bugt, Riisgårde Bredning, Skive Fjord og Lovns Bredning	157,158	3,632			992	2,230		1,611	1,611	56
158	Hjarbæk Fjord	158	1,795			555	966		760	760	58
159	Mariager Fjord, indre	159	516			100	305		202	202	61
160	Mariager Fjord, ydre	159,160	963			926	741		834	834	13
165	Isefjord, indre	165	812	383		400	812	383	606	494	39
200	Kattegat Nordsjælland	1,2,24,165,200	1,857			1,857	629		1,243	1,243	33
201	Køge Bugt	201	1,109	902		1,109	1,109	902	1,109	1,005	9
204	Jammerland Bugt og Musholm Bugt	204	1,327			1,327	540		934	934	30

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
206	Smålandsfarvandet, åbne del	16,17,18,25,35,36,37,206	2,014			2,014	1,699		1,856	1,856	8
207	Nakskov Fjord	207	454			454	369		411	411	9
208	Femerbælt	207,208,209	1,530			1,468	1,530		1,499	1,499	2
209	Rødsand og Bredningen	209	521			284	359		322	322	38
212	Fåborg Fjord	212	30			11	30		20	20	32
214	Det sydfynske Øhav	68,72,212,214	633	176	461	176	529	319	352	336	47
216	Lillebælt, syd	87,101,102,103,104,105,110,113,114,216	1,309			462	1,309		885	885	32
217	Lillebælt Bredningen	74,82,106,108,109,217	956	276		371	956	276	663	469	51
219	Århus Bugt, syd, Samsø og Nordlige Bælthav	59,62,92,93,127,128,142,146,219	2,810			626	2,810		1,718	1,718	39
221	Skagerrak	221	1,423			1,423			1,423	1,423	0
222	Kattegat Ålborg Bugt	222,159,160	2,026			2,026	2,026		2,026	2,026	0
224	Nordlige Lillebælt	122,123,224	1,588			389	1,588		988	988	38
225	Nordlige Kattegat ÅlbækBugt	225	706			706	706		706	706	0
231	Lillebælt Snævringen	231,124,125,80	789		335	182	439	335	311	323	59

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
232	Nissum Bredning	232	880	361	707	297	880	534	589	561	36
233	Kaas Bredning og Venø Bugt	232,233	1,955			1,650	1,276		1,463	1,463	25
234	Løgstør Bredning	157,158,234, 233, 236	6,501			1,980	4,314		3,147	3,147	52
235	Nibe Bredning og Langerak	157, 158, 233, 234, 235, 236, 238	11,064		10,410	4,865	11,064	10,410	7,965	9,188	17
236	Thisted Bredning	236	1,091			269	547		408	408	63
238	Halkær Bredning	238	620			114	298		206	206	67

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Appendix E – Maximum Allowable Nitrogen Inputs (N-MAIs) based on management scenario 2d and assuming 50% reduction in Danish land-based P-loads

Table E- 1 Water body-specific MAIs based on the two individual indicators chlorophyll-a (Chl-a) and light penetration depth (light) estimated from statistical models (STAT) or mechanistic models (MEK), respectively.
The table shows both the individual calculations as well as the averaged water-specific MAIs (without any aggregation) and the corresponding need for reduction in %. The data in this table are based on management scenario 2d and Danish land-based P-reductions set at 50%.

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
1	Roskilde Fjord, ydre	1,2	764			656	456		556	556	27
2	Roskilde Fjord, indre	2	388	388		388	373	388	381	384	1
6	Nordlige Øresund	6	1,098			1,098	1,098		1,098	1,098	0
16	Korsør Nor	16	40			40	25		33	33	18
17	Basnæs Nor	17	69			69	37		53	53	23
18	Holsteinborg Nor	18	22			22	22		22	22	0
24	Isefjord, ydre	24,165	899	636	754	567	709	695	638	667	26
25	Skælskør Fjord og Nor	25	44			38	43		41	41	7
28	Sejerø Bugt	28	164			164	164		164	164	0
29	Kalundborg Fjord	29	69	38	69	39	69	53	54	54	23
34	Smålandsfarvandet, syd	34	523			523	523		523	523	0
35	Karrebæk Fjord	35	1,272			1,272	1,015		1,143	1,143	10
36	Dybsø Fjord	36	61			61	61		61	61	0
37	Avnø Fjord	37	238			238	158		198	198	17
38	Guldborgsund	38	419			419	419		419	419	0
44	Hjelm Bugt	44	91			91	91		91	91	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
45	Grønsund	45	278			278	136		207	207	25
46	Fakse Bugt	46,47	509			509	509		509	509	0
47	Præstø Fjord	47	208			158	149		153	153	26
48	Stege Bugt	48,49	259			259	259		259	259	0
49	Stege Nor	49	24			19	13		16	16	33
56	Østersøen, Bornholm	56	859			184	860		522	522	39
57	Østersøen, Christiansø	57	3			0	3		2	2	48
59	Nærå Strand	59	98			59	76		68	68	31
62	Lillestrand	62	11			8	5		7	7	39
68	Lindelse Nor	68	50			50	50		50	50	0
72	Kløven	72	43			43	43		43	43	0
74	Bredningen	74	128			68	75		71	71	44
80	Gamborg Fjord	80	80			66	80		73	73	9
82	Aborg Minde Nor	82	152			69	64		66	66	56
83	Holckenhavn Fjord	83	289			134	177		156	156	46
84	Kerteminde Fjord	84,85	50			31	50		40	40	19
85	Kertinge Nor	85	24	24		23	16	24	20	22	8
86	Nyborg Fjord	83,86	308			179	296		237	237	23
87	Helnæs Bugt	87	216			67	216		141	141	35

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
89	Lunkebugten	89	16			5	16		10	10	34
90	Langelandssund	83,86,89,90	768			581	768		674	674	12
92	Odense Fjord, ydre	92,93	1,358	836	1,223	1,036	1,300	1,030	1,168	1,099	19
93	Odense Fjord, Seden Strand	93	1,288		690	1,288	761	690	1,024	857	33
95	Storebælt SV	95	188			41	188		115	115	39
96	Storebælt NV	96, 84, 85	227			38	227		132	132	42
101	Genner Bugt	101	35			13	25		19	19	46
102	Åbenrå Fjord	102	130	59		59	106	59	82	71	46
103	Als Fjord	103,104,105	269			67	269		168	168	37
104	Als Sund	104	68			68	68		68	68	0
105	Augustenborg Fjord	105	62	62		62	62	62	62	62	0
106	Haderslev Fjord	106	239			112	166		139	139	42
107	Juvre Dyb	107	349			119			119	119	66
108	Avnø Vig	108	60			45	38		41	41	31
109	Hejlsminde Nor	109	138			138	108		123	123	11
110	Nybøl Nor	110	66			51	62		56	56	15
111	Lister Dyb	111	2,155			1,318			1,318	1,318	39
113	Flensborg Fjord, indre	113	51	21		19	51	21	35	28	45
114	Flensborg Fjord, ydre	110,113,114	219	219		219	219	219	219	219	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
119	Vesterhavet, syd	119, 107, 111, 121, 120	8,538			3,934			3,934	3,934	54
120	Knudedyb	120	2,910	2,026		841		2,026	841	1,433	51
121	Grådyb	121	2,920			1,576			1,576	1,576	46
122	Vejle Fjord, ydre	122,123	968			519	968		743	743	23
123	Vejle Fjord, indre	123	561	561	519	535	483	540	509	524	7
124	Kolding Fjord, indre	124	493	314		271	335	314	303	309	37
125	Kolding Fjord, ydre	124,125	528			278	433		356	356	33
127	Horsens Fjord, ydre	127,128	833			553	468		511	511	39
128	Horsens Fjord, indre	128	782			414	466		440	440	44
129	Nissum Fjord, Ydre	129,131,130	2,413			2,412	1,437		1,925	1,925	20
130	Nissum Fjord, mellem	130,131	2,083			2,083	1,281		1,682	1,682	19
131	Nissum Fjord, Felsted Kog	131	1,938	1,938			1,516	1,938	1,516	1,727	11
132	Ringkøbing Fjord	132	4,748		3,616	4,748	4,142	3,616	4,445	4,030	15
133	Vesterhavet, nord	133,129,130 ,131, 132	7,237			7,237			7,237	7,237	0
136	Randers Fjord, indre	136	2,925	2,925	2,126	2,925	2,126	2,525	2,525	2,525	14
137	Randers Fjord, ydre	136,137	3,078	3,078	2,160	3,078	2,160	2,619	2,619	2,619	15
138	Hevring Bugt	138, 137, 136	3,235		3,235	3,235	3,235		3,235	3,235	0

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
139	Anholt	139	9			9	9		9	9	0
140	Djursland Øst	140	856			493	856		674	674	21
141	Ebeltoft Vig	141	14			14	14		14	14	0
142	Stavns Fjord	142	5			5	4		4	4	18
144	Knebel Vig	144	18			11	18		15	15	19
145	Kalø Vig	144,145	190	190	190	190	190	190	190	190	0
146	Norsminde Fjord	146	140			140	118		129	129	8
147	Århus Bugt og Begtrup Vig	144,145,147	656	656	656	636	656	656	646	651	1
154	Kattegat Læsø	154	78			78	78		78	78	0
157	Bjørnholms Bugt, Riisgårde Bredning, Skive Fjord og Lovns Bredning	157,158	3,633			1,185	2,626		1,905	1,905	48
158	Hjarbæk Fjord	158	1,795			666	1,168		917	917	49
159	Mariager Fjord, indre	159	516			115	369		242	242	53
160	Mariager Fjord, ydre	159,160	963			963	866		914	914	5
165	Isefjord, indre	165	812	383		400	812	383	606	494	39
200	Kattegat Nordsjælland	1,2,24,165,200	1,857			1,857	629		1,243	1,243	33
201	Køge Bugt	201	1,109	937		1,109	1,109	937	1,109	1,023	8
204	Jammerland Bugt og Musholm Bugt	204	1,327			1,327	546		936	936	29

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
206	Smålandsfarvandet, åbne del	16,17,18,25,35,36,37,206	2,014			2,014	1,699		1,856	1,856	8
207	Nakskov Fjord	207	454			454	375		414	414	9
208	Femerbælt	207,208,209	1,530			1,468	1,530		1,499	1,499	2
209	Rødsand og Bredningen	209	521			284	359		322	322	38
212	Fåborg Fjord	212	30			11	30		20	20	32
214	Det sydfynske Øhav	68,72,212,214	633	176	468	176	529	322	352	337	47
216	Lillebælt, syd	87,101,102,103,104,105,110,113,114,216	1,309			462	1,309		885	885	32
217	Lillebælt Bredningen	74,82,106,108,109,217	956	276		371	956	276	663	469	51
219	Århus Bugt, syd, Samsø og Nordlige Bælthav	59,62,92,93,127,128,142,146,219	2,810			626	2,810		1,718	1,718	39
221	Skagerrak	221	1,423			1,423			1,423	1,423	0
222	Kattegat Ålborg Bugt	222,159,160	2,026			2,026	2,026		2,026	2,026	0
224	Nordlige Lillebælt	122,123,224	1,588			389	1,588		988	988	38
225	Nordlige Kattegat ÅlbækBugt	225	706			706	706		706	706	0
231	Lillebælt Snævringen	231,124,125,80	789		409	182	439	409	311	360	54

No.	Name	Aggregation	Average annual N-load	Chl-a (STAT)	Light (STAT)	Chl-a (MEK)	Light (MEK)	N-MAI (STAT)	N-MAI (MEK)	Avg. MAI	Avg. reduction [%]
232	Nissum Bredning	232	880	427	775	297	880	601	589	595	32
233	Kaas Bredning og Venø Bugt	232,233	1,955			1,791	1,591		1,691	1,691	14
234	Løgstør Bredning	157,158,234, 233, 236	6,503			1,980	4,758		3,369	3,369	48
235	Nibe Bredning og Langerak	157, 158, 233, 234, 235, 236, 238	11,064		10,827	6,332	11,064	10,827	8,698	9,763	12
236	Thisted Bredning	236	1,091			271	586		428	428	61
238	Halkær Bredning	238	620			316	475		396	396	36