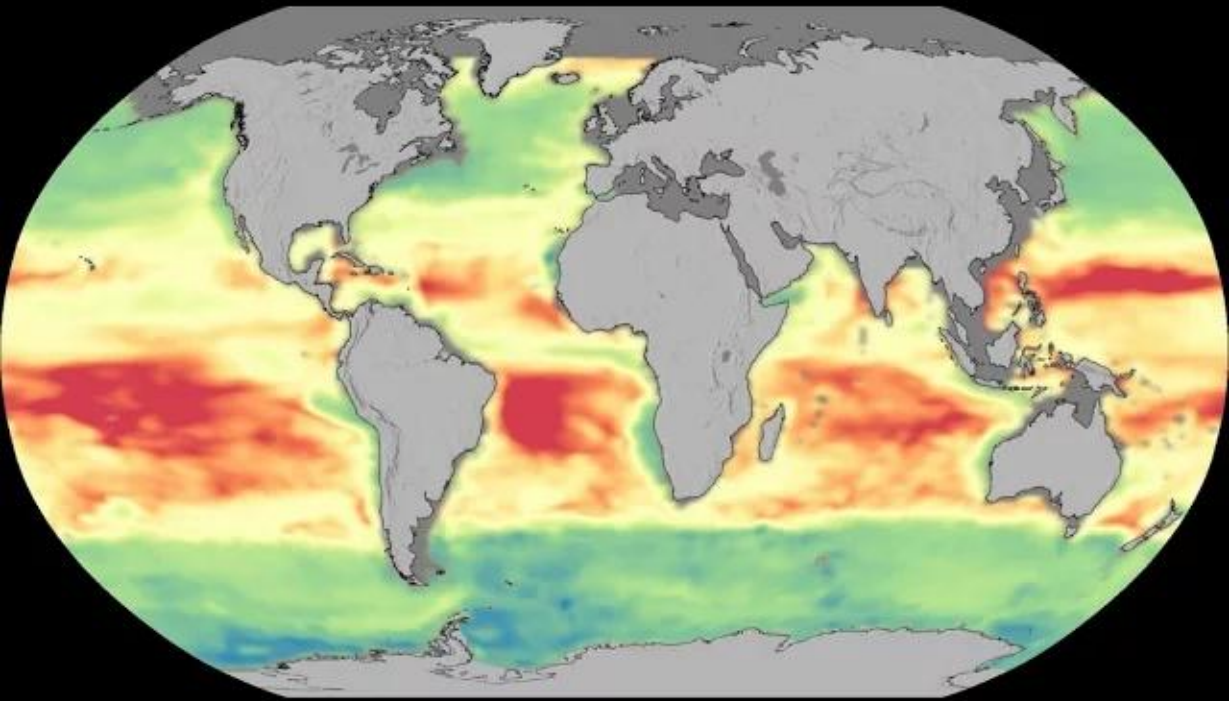

1
00:00:00,020 --> 00:00:04,050
Diatoms are one of the most abundant types of marine phytoplankton.

2
00:00:04,070 --> 00:00:08,100
But a new 15 year long NASA study reveals global

3
00:00:08,120 --> 00:00:12,170
populations have declined. Diatoms, like all

4
00:00:12,190 --> 00:00:16,240
phytoplankton, have chlorophyll, the same photosynthesizing pigment as

5
00:00:16,260 --> 00:00:20,290
plants.They occupy the surface of the ocean where they harvest light from the

6
00:00:20,310 --> 00:00:24,350
sun. In large numbers, diatoms form colorful

7
00:00:24,370 --> 00:00:28,390
swirling blooms that can be seen from space.

8
00:00:28,410 --> 00:00:32,480
Scientists used NASA satellite data, water samples and computer

9
00:00:32,500 --> 00:00:36,520
modeling to determine how diatom populations have varied. This

10
00:00:36,540 --> 00:00:40,540
data visualization shows changes from 1998 - 2012.

11
00:00:40,560 --> 00:00:44,580
According to the study, significant decreases in populations

12
00:00:44,600 --> 00:00:48,630
shown here in red are mainly in the Northern Hemisphere.

13
00:00:48,650 --> 00:00:52,660

Scientists link this to a shift in the availability of nutrients.

14
00:00:52,680 --> 00:00:56,720
Diatoms rely on nutrients such as nitrate, silicate

15
00:00:56,740 --> 00:01:00,770
and iron to reach the surface layer where they live. What our study

16
00:01:00,790 --> 00:01:04,830
shows is that the availability of these nutrients has

17
00:01:04,850 --> 00:01:08,860
changed due to the way they cycle within the water column. Diatoms

18
00:01:08,880 --> 00:01:12,910
occupy the surface area of the ocean called the mixed layer.

19
00:01:12,930 --> 00:01:16,960
Nutrients collect on the ocean floor and are cycled up to this layer.

20
00:01:16,980 --> 00:01:21,000
Various physical forces can cause the depth of the mixed layer to become

21
00:01:21,020 --> 00:01:25,050
shallower so that fewer nutrients reach the diatoms. Without these

22
00:01:25,070 --> 00:01:29,130
nutrients, their populations decline. This map shows

23
00:01:29,150 --> 00:01:33,200
areas on the globe where the depth of the mixed layer shallowed.

24
00:01:33,220 --> 00:01:37,250
It’s hard to pinpoint exactly why this changes have happened.

25
00:01:37,270 --> 00:01:41,280
Things like winds, circulation and temperature can affect

26
00:01:41,300 --> 00:01:45,320
the way these nutrients are brought into the surface layer. We hope a

27
00:01:45,340 --> 00:01:49,360
longer study can yield more information on whether these changes