Date of Hearing: June 27, 2018

ASSEMBLY COMMITTEE ON EDUCATION
Patrick O'Donnell, Chair
SB 720 (Allen) – As Amended June 20, 2018

[Note: This bill was doubled referred to the Assembly Natural Resources Committee and was heard by that Committee as it relates to issues under its jurisdiction.]

SENATE VOTE: 39-0

SUBJECT: Environmental education: environmental principles and concepts

SUMMARY: Requires the Office of Education and the Environment (OEE) to ensure that updates to the education principles and concepts for the environment (EP&Cs) involve input from several entities, including credentialed teachers, members of the public, and several state agencies; requires the OEE to provide technical assistance to state agencies on integrating the principles into programs, as well as state curriculum standards, frameworks, and instructional materials; requires the Instructional Quality Commission (IQC) to ensure that the principles are integrated into standards and frameworks that are undergoing revision, in several subject areas. Specifically, **this bill**:

1) Specifies that the process for updating the EP&Cs includes cooperation between the OEE and the Superintendent of Public Instruction (SPI), the State Board of Education (SBE), the California Environmental Protection Agency (CalEPA), and the California Natural Resources Agency.

2) Requires the OEE to ensure that the EP&Cs are based on current scientific and technical knowledge, and to solicit and coordinate input from the SBE, SPI, and other executive branch agencies and departments, nongovernmental science and education consultants and organizations with the relevant scientific and technical knowledge, and currently employed, credentialed public school classroom teachers with experience in education related to the environment.

3) Requires the OEE to hold a minimum of two public meetings, in accordance with the Bagley-Keene Open Meeting Act, when updating the EP&Cs.

4) Requires the EP&Cs to be aligned to the academic content standards adopted by the SBE in the subject of health, in addition to English language arts, science, history-social science, and mathematics.

5) Requires the OEE to provide technical assistance to state agencies involved in the integration of the EP&Cs in the programs they operate, and in the integration of the principles into state curriculum standards, frameworks, and instructional materials.

6) Requires the EP&Cs to include climate change and waste reduction, and repeals the requirement that the EP&Cs include integrated waste management.

7) Requires the IQC to ensure that the EP&Cs are integrated into the content standards and curriculum frameworks in the subjects of English language arts, science, history-social

science, health, and, to the extent practicable, mathematics, whenever those standards and frameworks are revised.

8) Repeals the following provisions from the Public Resources Code:

   a) The requirement that the SBE collaborate with the OEE to modify the EP&Cs to make them appropriate for inclusion in the textbook adoption criteria in science, mathematics, English language arts, and history-social sciences, if the SBE determines that this is necessary.

   b) The requirement that, if the content standards in mathematics, history/social science, or science are revised, the EP&Cs be considered for inclusion into part of the revised academic content standards.

9) Adds numerous findings and legislative declarations relating to environmental education, including:

   a) The EP&Cs are fundamental to the definition of environmental literacy in California and should be deemed to be the official EP&Cs for public education in California and may only be updated or amended as authorized by the bill.

   b) The intent of the Legislature is that the SPI use the resources at his or her disposal to provide leadership to further the goals of environmental literacy and environmental justice, as specified.

   c) Declares that the Legislature encourages the governing boards of school districts to do all of the following with respect to the course of study for grades 7 to 12:

      i. Embed environmental literacy into Local Control and Accountability Plans (LCAPs);

      ii. Provide professional development for educators in environmental literacy, in the integration of the EP&Cs and other environmental content with state-adopted standards and curriculum frameworks, in the development and implementation of curriculum and activities inside and outside the classroom that promote environmental literacy, and in linking environmental literacy content and principles to career pathways;

      iii. Build partnerships with other local educational agencies, community-based organizations, and "nonformal" education providers with expertise in science, history-social science, public health, social and environmental justice, and other environmental content providers in all aspects of environmental literacy programs; and,

   d) Ensure that environmental literacy curriculum and learning experiences are made available on an equitable basis to all pupils and that the environmental literacy curriculum and learning experiences reflect the linguistic, ethnic, and socioeconomic diversity of California.

EXISTING LAW:

1) Establishes the OEE in the California Department of Resources Recycling and Recovery (CalRecycle) and requires the OEE to implement a statewide environmental education program (Public Resources Code (PRC) 71300).

2) Requires the OEE, under the direction of CalRecycle and in cooperation with the California Department of Education (CDE) and the SBE, to develop and implement a unified education strategy of the environment for elementary and secondary schools that does all of the following (PRC 71300):

    a) Coordinate instructional resources and strategies for providing active pupil participation in onsite conservation efforts.

    b) Promote service-learning opportunities between schools and local communities.

    c) Assess the impact of the unified education strategy on the achievement and resource conservation of participating pupils.

3) Requires the CDE and SBE, in cooperation with CalRecycle, to develop and implement, to the extent feasible, a teacher training and implementation plan that guides the phased implementation of the unified education strategy in elementary, middle, and high school programs, for the education of pupils, faculty, and administrators on the importance of integrating environmental concepts and programs in schools (PRC 71300).

4) Authorizes the OEE to hold public meetings to receive and respond to comments from affected state agencies, stakeholders, and the public regarding the development of resources and materials for the statewide educational program (PRC 71300).

5) Requires the OEE to coordinate with other agencies and groups with expertise in education and the environment to implement the statewide educational program (PRC 71300).

6) Requires, as part of the unified education strategy, the OEE to develop education principles for the environment for elementary and secondary school pupils, in cooperation with the Secretary for Environmental Protection, the Natural Resources Agency, the CDE, and the SBE (PRC 71301).

7) Authorizes the principles to be updated every four years, starting in 2008 (PRC 71301).

8) Requires the principles to be aligned to the academic content standards adopted by the SBE for English language arts, mathematics, history-social science, and science (PRC 71301).

9) Requires the education principles be used to do all of the following (PRC 71301):

    a) To direct state agencies that include environmental education components for elementary and secondary education in regulatory decisions or enforcement actions (PRC 71301).

    b) To align state agency environmental education programs and materials that are developed for elementary and secondary education (PRC 71301).

10) Requires the education principles for the environment include, but not be limited to, concepts relating to the following topics (PRC 71301):

    a) Environmental sustainability

    b) Water

    c) Air

    d) Energy

    e) Forestry

    f) Fish and wildlife resources

    g) Oceans

    h) Toxics and hazardous waste

    i) Integrated waste management

    j) Integrated pest management

    k) Public health and the environment

    l) Pollution prevention

    m) Resource conservation and recycling

    n) Environmental justice

11) Requires the principles to be aligned to the applicable academic content standards adopted by the SBE and to not duplicate or conflict with any academic content standards (PRC 71301).

12) Requires the principles to be incorporated, as the SBE determines to be appropriate, into criteria developed for textbook adoption in science, mathematics, English/language arts, and history-social sciences (PRC 71301).

13) Requires, if the SBE determines that the principles are not appropriate for inclusion in textbook adoption criteria, the SBE to collaborate with the Office to modify the principles as needed to ensure that they are included in the textbook adoption criteria in science, mathematics, English/language arts, and history-social sciences (PRC 71301).

14) Requires the principles to be considered for inclusion in the academic content standards if the standards in science, mathematics, English/language arts, or history-social sciences are revised (PRC 71301).

FISCAL EFFECT: Unknown

COMMENTS:

Need for the bill. The author's office states, "SB 720 takes a step-wise approach to ensuring that the EP&Cs are being integrated into future planning for the school districts. The bill seeks to strengthen access to environmental literacy and encourage partnerships with other educational agencies and community-based and nonprofit organizations. Research has shown that garden-based learning and environmental service-learning fosters critical thinking and collective problem-solving skills, addressing students' need for experiences that prepare them for higher education, the workplace, and civic engagement. The bill also directs the SPI to use available resources to further the goals of environmental literacy and justice. Lastly, the bill ensures that the appropriate scientific and educational agencies cooperate to update or amend the environmental principles. The bill encourages cooperation between the SBE, SPI, CalEPA, CalRecycle, and the Natural Resources Agency to ensure that the EP&Cs are based on the most current scientific and technical knowledge. SB 720 reinforces the state's commitment to environmental education and ensures continuity during administration changes."

Environmental literacy as a state priority. Several state actions over the past two decades have focused on developing environmental literacy among California's K-12 students. In 2003, passage of AB 1548 (Pavley), Chapter 665 initiated the Education and the Environment Initiative (EEI) by creating the Office of Education and the Environment within the state agency now known as CalRecycle. The bill also tasked the OEE with developing the state's EP&Cs; required the EP&Cs to be integrated throughout a newly created environment-based K-12 model curriculum; and required the EP&Cs to be integrated into criteria for textbook adoption in science, mathematics, English/language arts, and history-social sciences. The EP&Cs are listed in a table on the following page.

The EP&Cs guide the model curriculum that was developed by the OEE in collaboration with the CDE, the California Natural Resources Agency, and several non-state organizations, including Heal the Bay, the National Geographic Society, and the State Education and Environment Roundtable. In developing the EEI Curriculum, the OEE solicited input from state agencies, education organizations, business groups, universities, and environmental organizations. In addition, the OEE distributed an "Educator Needs Assessment" to 10,000 teachers and held numerous focus group meetings and discussion sessions. In 2010, the SBE unanimously approved the EEI curriculum, including the EP&Cs, for use throughout the state.

The OEE shares its educational resources—including the model curriculum and teacher guides to facilitate implementation of the curriculum—by conducting significant outreach through the EEI website, an active EEI Twitter feed, and a blog. It also provides EEI Curriculum training at sites throughout the state and via webinars.

A second environmental literacy initiative began in 2014, when SPI Torlakson assembled the California Environmental Literacy Task Force (ELTF) to create a blueprint for achieving environmental literacy for all California students. The Blueprint, entitled *A Blueprint for Environmental Literacy: Educating Every Student In, About, and For the Environment*, was published in 2015. The Blueprint highlights the need for expanded environmental literacy education by referencing a recent survey of 520 California school principals. This survey showed that 13 percent of schools have integrated environmental education into their curricula, and 77 percent spend less than $5,000 on field trips, professional development, and curricular materials for environmental education. In addition, the Blueprint states, "A false perception persists from

Principle 1. People Depend on Natural Systems
The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

Concept A. The goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.
Concept B. The ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.
Concept C. That the quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.

Principle 2. People Influence Natural Systems
The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

Concept A. Direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.
Concept B. Methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.
Concept C. The expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.
Concept D. The legal, economic, and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems.

Principle 3. Natural Systems Change in Ways that People Benefit from and can Influence
Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

Concept A. Natural systems proceed through cycles and processes that are required for their functioning.
Concept B. Human practices depend upon and benefit from the cycles and processes that operate within natural systems.
Concept C. Human practices can alter the cycles and processes that operate within natural systems.

Principle 4. There are No Permanent or Impermeable Boundaries that Prevent Matter from Flowing Between Systems
The exchange of matter between natural systems and human societies affects the long-term functioning of both.

Concept A. The effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.
Concept B. The byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.
Concept C. The capacity of natural systems to adjust to human-caused alterations depends on the nature of the system as well as the scope, scale, and duration of the activity and the nature of its byproducts.

Principle 5. Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors
Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

Concept A. There is a spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.
Concept B. The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

the No Child Left Behind accountability era that environmental and outdoor programs are non-academic and not connected to the core curriculum. Research shows, however, that in schools where environmental content is integrated as a primary part of instruction, student achievement has improved."

To improve environmental literacy among California's students, the Blueprint identified the following six strategies:

1) Systematically integrate environmental literacy concepts into statewide educational priorities

2) Strengthen collaboration across the state between key stakeholders

3) Leverage the Superintendent's influence and create a public awareness campaign to build broad support for the importance of environmental literacy, and encourage and support increased allocation of state and locally controlled funding to environmental literacy programs

4) Implement changes to relevant state law and policy and ensure that relevant existing laws are funded and effectively implemented

5) Create an Environmental Literacy Steering Committee (ELSC) to oversee the implementation of the recommendations of the Blueprint

6) Develop a coherent strategy for funding environmental literacy across the state

In 2016, Superintendent Torlakson appointed the ELSC to create an implementation plan for environmental literacy. The ELSC is comprised of 30 educational leaders and nonprofit stakeholders, and includes representatives from CDE, CalRecycle, University of California, and the SBE.

Environmental literacy has been integrated into science, history-social science, and health. The intent of AB 1548 (Pavley), Chapter 665, Statutes of 2003, which established the OEE and initiated creation of the EP&Cs, was to improve environmental literacy among California's K-12 students by integrating the EP&Cs into the curriculum for English language arts, science, math, and history-social science. To accomplish this, AB 1548 required the EP&Cs to be incorporated into textbook adoption criteria and *considered* for inclusion in the standards.

This bill supports the original intent of AB 1548 and improves alignment throughout the curriculum development process by requiring that the EP&Cs be included not only in textbook adoption criteria, but in academic content standards and frameworks as well. Although the EP&Cs and environmental topics have been incorporated into standards and frameworks for several subjects, this has occurred on a voluntary basis. Specifically, the SBE incorporated the EP&Cs into the Health Education Framework, and environmental literacy concepts have been integrated into the history-social science standards and throughout California's Next Generation Science Standards (NGSS; see below).

1) Health: In 2008, the IQC began the process of revising the Health Education Framework to reflect current health education statutes, as well as the state's health content standards, adopted by the SBE in 2008. However, AB 4 X2 (Evans) Chapter 2, Statutes of 2009 halted all work on instructional materials adoptions and framework revisions until the 2013-14

school year, a response to the state's fiscal emergency. The suspension was later extended until the 2015-16 school year by SB 70 (Committee on Budget), Chapter 7, Statutes of 2011. The health curriculum framework revision has since been reinitiated, and final adoption by the SBE is scheduled for May 2019. In April 2018, the CDE released on its website a draft of the Health Education Framework. The introduction to the framework lists the EP&Cs and describes their integration into the framework as follows:

> "Educating students about environmental health, from both a personal and community health perspective, is a strand in the standards that continues from kindergarten through high school where students are expected to learn, among other issues, about the impacts of air and water pollution on health. These topics tie directly to California's EP&Cs, adopted by the SBE in 2004. The EP&Cs are an important piece of the curricular expectations for all California students that teachers can incorporate through their many connections with the health education standards, specifically by focusing instruction on the personal and community effects of environmental issues."

2) Science: In 2013, the SBE adopted the California NGSS as the state's content standards in science, with some modifications of the national model. In contrast to California's previous science standards, NGSS shifts focus from having students memorize scientific information to teaching students how to think critically about core scientific ideas, how to connect key concepts across disciplines, and how to implement processes used by practicing scientists. The NGSS details performance expectations for grades K-12 and includes a focus on key aspects of environmental literacy. The Blueprint provides the following examples:

   a) Kindergarten: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

   b) Grade 5: Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

   c) Middle School: Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

   d) High School: Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.

3) History-social science: The history-social science standards also address environmental topics, although the standards were last revised in 1998. The Blueprint provides the following examples of environmental topics within the history-social science standards:

   a) Grade 4: Analyze the effects of the Gold Rush on settlements, daily life, politics, and the physical environment.

   b) Grade 6: Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.

c) Grade 11: Discuss the diverse environmental regions of North America, their relationship to local economies, and the origins and prospects of environmental problems in those regions.

State educational frameworks, but not standards, are developed on a standardized timeline. During the standards movement in the 1990s, when the state began adopting content standards in a number of subject areas, no process was established in state law to allow for regular revisions to these standards. As a result, revision of content standards must currently be initiated by legislative action. In contrast, curriculum frameworks—which are built upon, and provide guidance on how to implement, those standards—are updated on an eight-year cycle.

This bill requires the EP&Cs to be incorporated into revisions of the standards and frameworks; however, the EP&Cs, as well as subsequent changes to the EP&Cs, will not be reflected in the standards unless legislative action requires revision of the standards.

Recommended amendments. This bill requires the EP&Cs to be reviewed for updates every four years with input from a variety of stakeholders, including several state agencies, teachers, and consultants with relevant scientific expertise. In addition, this bill requires the EP&Cs to be integrated throughout the curriculum across multiple subject areas, and to be aligned with, and not duplicative of, existing academic content standards.

Teachers will be responsible for delivering this content in the classroom. In addition, they have a working knowledge of the academic standards, as well as the scope and sequence of instructional content through the grade levels. Thus, ***the committee may wish to consider*** the value of ensuring that teachers provide significant contributions to the EP&C updating process. ***Staff recommends*** amending the bill to require that the majority of individuals consulted to review proposed changes to the EP&Cs to be currently employed, credentialed public school classroom teachers with experience in education related to the environment. In addition, ***staff recommends*** a technical amendment to clarify the text of the bill.

REGISTERED SUPPORT / OPPOSITION:

Support

Ten Strands (sponsor)
5 Gyres
7th Generation Advisors
Alameda Unified School District
Alliance for Climate Education
Association of Zoos and Aquariums
Azul
Bioneers
California Academy of Sciences
California Association of Zoos and Aquariums
California League of Conservation Voters
California Native Plant Society
California Science Teachers Association
Californians Against Waste
ChangeScale

Cleantech San Diego
Clean Water Action
Climate Cents
Common Sense Kids Action
Conservation Corps of Long Beach
Education Outside
Environmental Charter Schools
Environmental Working Group
Exploratorium
Friends of the LA River
Greenpeace
Golden Gate National Parks Conservancy
Heal the Bay
Inside the Outdoors Foundation
Latino Outdoors
Literacy for Justice
Natural Resources Defense Council
NatureBridge
Outdoor Afro
Plastic Pollution Coalition
San Joaquin County Office of Education
San Francisco Unified School District Science Department
Surfrider Foundation
The Center for Oceanic Awareness, Research, and Education
The Trust for Public Land
TreePeople
Upstream
West Contra Costa Public Education Fund
Wishtoyo Chumash Foundation
Youth Outside
Zero Waste USA
Two individuals

Opposition

None received

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